

Full Circle Magazine



Issue #172

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Editorial

Welcome to the latest issue of Full Circle

This month we have the usual suspects of Python, Inkscape, LMMS, and Micro this, that, and the next thing. Absent this month is Latex as Erik was busy with some real world stuff. Filling in are pieces on Eternal Terminal and one on making your own network print server.

Elsewhere, we have a review of Ubuntu Unity 21.04 which rounds off the series of 21.04 reviews from Adam. But fear not! I installed Linux Lite on my old laptop and I'm hoping to have a review of that next month. Fingers crossed!

Don't forget: if you're looking for some help, advice, or just a chit chat: remember, we have a Telegram group. I mention this as I've been giving out the wrong link in a couple of emails. The (new and updated) link is: <https://t.me/joinchat/24ec1oMFO1ZjZDc0>. I hope to see you there. Come and say hello.

Anyway, stay safe, and all the best for 2021! Ronnie
ronnie@fullcirclemagazine.org



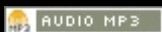
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NEWS

Submitted by ErikTheUnread

Full Circle Weekly News



<http://fullcirclemagazine.org/feed/podcast>
[http://www.stitcher.com/s?
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[https://player.fm/series/the-full-circle-
weekly-news](https://player.fm/series/the-full-circle-weekly-news)

Haiku R1 beta 3:

07/26/2021

After a year of development, the third beta release of the Haiku R1 operating system has been published. The project was originally created in response to the shutdown of BeOS and developed under the name OpenBeOS, but was renamed in 2004 due to claims related to the use of the BeOS trademark in the name. Several bootable Live images (x86, x86-64) have been prepared to evaluate the performance of the new release. The source code for most of the Haiku OS is distributed under the free MIT license, with the exception of some libraries, media codecs and components borrowed from other projects.

Haiku OS is focused on personal computers, uses its own kernel, built on a modular architecture, optimized for high responsiveness to user actions and efficient execution of multithreaded applications. An object-oriented API is presented for developers. The system is directly based on BeOS 5 technologies and is aimed at binary compatibility with applications for this OS. Minimum hardware requirement: CPU Pentium II and 384 MB RAM (Intel Core i3 and 2 GB RAM recommended).

Release of nDPI 4.0 deep packet inspection system:

07/27/2021

The ntop project, which develops tools for capturing and analyzing traffic, has published a release of the nDPI 4.0 deep packet inspection toolkit, which continues the development of the OpenDPI library. The nDPI project was founded after an unsuccessful attempt to push changes to an unattended OpenDPI repository. The nDPI code is written in C and is licensed under the LGPLv3 license.

The project allows you to determine the application-level protocols used in traffic by analyzing the nature of network

activity without binding to network ports (it can determine known protocols whose handlers accept connections on non-standard network ports, for example, if http is sent not from port 80, or, conversely, when which they try to camouflage other network activity as http by running on port 80).

<https://www.ntop.org/ndpi/introducing-ndpi-4-0-dpi-for-cybersecurity-and-traffic-analysis/>

PulseAudio 15.0 sound server released:

07/28/2021

The PulseAudio 15.0 sound server, which acts as an intermediary between applications and various low-level sound subsystems, abstracting the work with the equipment. PulseAudio allows you to control the volume and mixing of sound at the level of individual applications, organize the input, mixing and output of sound in the presence of several input and output channels or sound cards, allows you to change the audio stream format on the fly and use plug-ins, making it possible to transparently redirect the audio stream to another machine. PulseAudio code is distributed under the LGPL 2.1 + license. Supports Linux, Solaris, FreeBSD, OpenBSD, DragonFlyBSD, NetBSD, macOS and Windows.

<https://lists.freedesktop.org/archives/pulseaudio-discuss/2021-July/032099.html>

Release of OPNsense 21.7:

07/29/2021

OPNsense 21.7 is out, which is a fork of the pfSense project, created with the aim of forming a completely open distribution that could function at the level of commercial solutions for deploying firewalls and network gateways. Unlike pfSense, the project is positioned as not controlled by one company, developed with the direct participation of the community and has a completely transparent development process, as well as providing the opportunity to use any of its developments in

third-party products, including commercial ones. The source code of the distribution's components, as well as the tools used for building, are distributed under the BSD license. Assemblies are prepared in the form of a LiveCD and a system image for writing to Flash drives (422 MB).

The base distribution is based on the HardenedBSD code, which maintains a synchronized fork of FreeBSD, which integrates additional protection mechanisms and techniques for countering exploitation of vulnerabilities.

<https://forum.opnsense.org/index.php?topic=24112.0>

Apache Cassandra 4.0 is available:

07/29/2021

The Apache Software Foundation has presented Apache Cassandra 4.0 DBMS. It belongs to the class of noSQL systems and is designed to create highly scalable and reliable storage of huge data arrays stored in the form of an associative array (hash). The release of Cassandra 4.0 is considered ready for production and has already been tested on Amazon, Apple, DataStax, Instacluster, iland and Netflix infrastructures with clusters of more than 1000 nodes. The project code is written in Java and is distributed under the Apache 2.0 license. The DBMS allows you to create fault-tolerant storages: the data placed in the database is automatically replicated to several nodes of the distributed network, which can span different data centers. If a node fails, its functions are picked up on the fly by other nodes. Adding new nodes to the cluster and updating the Cassandra version is done on the fly, without additional manual intervention and reconfiguration of other nodes.

<https://blogs.apache.org/foundation/entry/the-apache-cassandra-project-releases>

SEE - <https://www.youtube.com/watch?v=kOf29M8qFts>

Release of Siduction 2021.2:

07/29/2021

The Siduction 2021.2 project, which develops a desktop-oriented Linux distribution, built on the Debian Sid (unstable) package base, was released. Siduction is a fork of Aptosid that spun off in July 2011. The key difference from Aptosid is the use of a newer version of KDE from the experimental Qt-KDE repository as a user environment, as well as fresh versions of Xfce, LXDE, Cinnamon and LXQt (GNOME and MATE are skipped due to the lack of maintainers), as well as a minimalistic X.Org assembly based on the Fluxbox window manager and the "noX" assembly, supplied without a graphical environment for users who wish to build their own system.

In the new release, the versions of the KDE Plasma 5.20.5 desktops have been updated, LXQt 0.16.0, Cinnamon 4.8.6.2, Xfce 4.16 and Lxde 11. The Linux kernel has been updated to version 5.13.6, and the system Systemd manager up to 247.3-6. The package base is in sync with the Debian Unstable repository as of July 28th. In Xorg and noX builds, as well as in the second build with Plasma 5.22.4, by default, the iwld daemon is used to connect to the wireless network instead of wpa_supplicant (in other builds, iwld is provided as an option).

<https://siduction.org/2021/07/release-notes-for-siduction-2021-2-0/>

Open source Orbiter space flight simulator:

08/01/2021

The Orbiter Space Flight Simulator project has been announced, offering a realistic space flight simulator that complies with the laws of Newtonian physics. The motivation for opening the code is the desire to provide the community with the opportunity to continue the development of the project after the author has been unable to develop for several years for personal reasons. The project code is written in C++ with scripts in Lua and published under the MIT license. Only the Windows platform is currently supported, and compilation requires Microsoft Visual Studio. The published sources are for

the "2016 Edition" with additional fixes.

The program offers models of both historical and modern spacecraft, and hypothetically possible and fantastic spaceships. The key difference between Orbiter and computer games is that the project does not offer any missions, but provides an opportunity to simulate a real flight, covering such tasks as calculating an orbit, docking with other vehicles and planning a flight path to other planets. The simulation uses a fairly detailed model of the solar system.

<https://www.orbiter-forum.com/threads/orbiter-is-now-open-source.40023/>

Latte Dock 0.10 released:

08/07/2021

After two years of development the Latte the Dock 0.10 is out, offering an elegant and simple solution for managing tasks and plasmoids. This includes effects like enlargement of icons in the style of macOS or the Plank. Latte panel is built on top of the KDE Frameworks framework and the Qt library. Integration with the KDE Plasma desktop is supported. The project code is distributed under the GPLv2 license.

The project is based on the merger of similar panels in their tasks - Now Dock and Candil Dock. After the merger, the developers tried to combine the two into a new one, which works separately from the Plasma Shell, proposed in Candil, with the high-quality interface design inherent in Now Dock and using only the KDE and Plasma libraries without third-party dependencies.

<https://psifidotos.blogspot.com/2021/08/latte-dock-v0100-official-stable-release.html>

Nmap 7.92 Released:

08/07/2021

The release of the Nmap 7.92 network security scanner is available, designed to audit a network and identify active network services. The new release resolves the Fedora Project's comments regarding incompatibility with the open source NPSL (GPLv2-based) license under which Nmap code is distributed. In the new version of the license, the mandatory requirement to purchase a separate commercial license when using the code in proprietary software is replaced by recommendations for using the OEM licensing program and the possibility of buying a commercial license if the manufacturer does not want to open the code of his product in accordance with the requirements of the copyleft license or intends to

integrate Nmap into products incompatible with the GPL

<https://seclists.org/nmap-announce/2021/3>

Bottlerocket 1.2, isolated container distribution released:

08/08/2021

Bottlerocket 1.2.0 is now available, developed with the participation of Amazon to efficiently and safely run isolated containers. The distribution and control components are written in Rust and are distributed under the MIT and Apache 2.0 licenses. Supported systems for running Bottlerocket: Amazon ECS, VMware, and AWS EKS Kubernetes clusters, as well as creating custom builds and revisions that allow for a variety of container orchestration and runtime tools.

The distribution provides an atomically and automatically updated indivisible system image that includes the Linux kernel and a minimal system environment that includes only the components needed to run containers. The environment uses the systemd system manager, Glibc library, Buildroot build toolkit, GRUB bootloader, wicked network configurator , runtime for isolated containerd containers , Kubernetes container orchestration framework, aws-iam-authenticator, and Amazon ECS agent.

Most of the system components are written in Rust, which provides means for safe memory handling to avoid vulnerabilities caused by accessing a memory area after it is freed, dereferencing null pointers, and overflowing buffer boundaries.

<https://github.com/bottlerocket-os/bottlerocket/releases/tag/v1.2.0>

Release of the P2P platform GUNet 0.15.0:

08/09/2021

The GUNet 0.15 framework, intended for building secure

decentralized P2P networks, is out. Networks created using GUNet do not have a single point of failure and are able to guarantee the privacy of users, including excluding possible abuse by special services and administrators who have access to network nodes.

GUNet supports the creation of P2P networks over TCP, UDP, HTTP / HTTPS, Bluetooth and WLAN, and can work in F2F (Friend-to-friend) mode. NAT traversal is supported, including using UPnP and ICMP. A distributed hash table (DHT) can be used to address data allocation. Means for deploying mesh networks are provided. To selectively grant and revoke access rights, a decentralized exchange of identification attributes reclaimID is used , using GNS (GNU Name System) and Attribute-Based Encryption .

The system is characterized by low resource consumption and the use of a multi-process architecture to ensure isolation between components. Flexible means of logging and statistics accumulation are provided. For the development of final applications, GUNet provides APIs for the C language and bindings for other programming languages. To simplify development, it is suggested to use event loops and processes instead of threads. It includes a test library for the automatic deployment of experimental networks covering tens of thousands of peers.

<https://gnunet.org/en/news/2021-08-0.15.0.html>

25th Alpha release available 0 AD:

08/09/2021

The twenty-fifth alpha release of the 0 AD - a free game has been published. It is a real-time strategy game with high-quality 3D graphics and gameplay very similar to the games in the Age of Empires series. The game's source code was released by Wildfire Games under the GPL after 9 years of development as a proprietary product. The game is available for Linux (Ubuntu, Gentoo, Debian, openSUSE, Fedora and Arch Linux), FreeBSD , OpenBSD, macOS and Windows. The current version

supports network play and single-player game with bots on pre-modeled or dynamically created maps. The game spans over ten civilizations ranging from 500 BC to 500 AD.

Non-code-related components of the game, such as graphics and sound, are licensed under a Creative Commons BY-SA license for modification and use in commercial products, provided that derivative works are credited and redistributed under a similar license. The game engine 0 AD has about 150 thousand lines of code in C++ , OpenGL is used to display 3D graphics, OpenAL is used to work with sound, and ENet is used to organize a network game.

<https://play0ad.com/new-release-0-a-d-alpha-25-yauna/>

Tor Browser 10.5.4 and Tails 4.21:

08/10/2021

The specialized distribution Tails 4.21 (The Amnesic Incognito Live System), based on Debian and designed to provide anonymous access to the internet, has been released. Anonymous logging into Tails is provided by the Tor system. All connections, except for traffic through the Tor network, are blocked by the packet filter by default. Encryption is used to store user data between runs. A 1 GB iso image has been prepared for downloading, capable of working in Live mode.

The new release has updated versions of Tor Browser 10.5.4 and Thunderbird 78.12. The installer has solved the problem with permanent data deletion when the "Cancel" button is selected during manual update of the distribution.

At the same time, a new version of the Tor Browser 10.5.4 was released, focused on ensuring anonymity, security and privacy. The release is synchronized with the Firefox 78.13.0 ESR codebase, which has fixed 10 vulnerabilities. They also updated NoScript to 11.2.11.

https://tails.boum.org/news/version_4.21/

Release of Elementary OS 6:

08/11/2021 16:36

Elementary OS 6, positioned as a fast, open and privacy-friendly alternative to Windows and macOS, is out. The main focus of the project is on quality design aimed at creating an easy-to-use system that consumes minimal resources and provides a high start-up speed. Users are offered their own Pantheon desktop environment. Bootable iso-images (2.36 GB) are available for the amd64 architecture (for free download from the project's website , enter 0 in the field with the donation amount).

When developing the original components of Elementary OS, GTK3, Vala language and Granite's own framework are used. Elementary OS 6 is compatible with Ubuntu 20.04 at the package level and repository support. The graphical environment is based on the proprietary Pantheon shell, which combines such components as the Gala window manager (based on LibMutter), the WingPanel top panel, the Slingshot launcher, the Switchboard control panel, the Plank lower taskbar (the Docky panel rewritten in Vala) and the session manager Pantheon Greeter (based on LightDM).

<https://blog.elementary.io/elementary-os-6-odin-released/>

The tenth ALT platform:

08/11/2021

ALT (p10) - a new stable branch, based on a repository of free software Sisyphus, is out. The platform is designed to develop, test, distribute, update and support complex solutions at all levels - from embedded devices to enterprise servers and data centers; created and developed by the ALT Linux Team , supported by the Basalt SPO company .

<http://basealt.ru/about/news/archive/view/desjataja-platforma-proekta-sizif-novyi-vitok-ehvolju/>

Thunderbird 91 Mail Client Released:

08/12/2021

A year after the publication of the last major release, the e-mail client Thunderbird 91, as developed by the community and based on Mozilla technologies, is out. The new release is categorized as a version with long-term support, updates for which are released throughout the year. Thunderbird 91 is based on the ESR codebase for Firefox 91. The release is available for direct download only, automatic updates from previous releases to version 91.0 are not provided and will only be generated in version 91.2.

<https://www.thunderbird.net/en-US/thunderbird/91.0/releasesnotes/>

PostgreSQL update with vulnerability fix:

08/12/2021

Corrective updates have been generated for all supported PostgreSQL branches: 13.4 , 12.8 , 11.13 , 10.18 and 9.6.23. Updates for branch 9.6 will be generated until November 2021, 10 until November 2022, 11 until November 2023, 12 until November 2024, 13 until November 2025.

The new versions offer 75 fixes and fix the CVE-2021-3677 vulnerability, which allows reading the memory of a server process through a specially crafted request. The attack can be carried out by any user with access to execute SQL queries. Only PostgreSQL branches 11, 12 and 13. Known attack variants do not affect configurations with the `max_worker_processes = 0` setting, but it is possible that there are options that do not depend on this setting.

<https://www.postgresql.org/about/news/postgresql-134-128-1113-1018-9623-and-14-beta-3-released-2277/>

Release of KDE Gear 21.08:

08/13/2021

The August Cumulative Update of Applications (21.08) developed by the KDE Project, is out. As a reminder, the KDE Consolidated Application Kit has been published since April under the name KDE Gear, instead of KDE Apps and KDE Applications. In total, within the framework of the update , releases of 226 programs, libraries and plugins have been published . Information on the availability of Live images with new releases of applications can be found on this page: <https://community.kde.org/Plasma/LiveImages>

<https://kde.org/announcements/gear/21.08.0/>

Debian GNU / Hurd 2021 Available:

08/14/2021

The release of the Debian GNU / Hurd 2021 distribution, which combines the Debian software environment with the GNU / Hurd kernel, is out. The Debian GNU / Hurd repository contains approximately 70% of the total Debian archive size, including ported Firefox and Xfce.

Debian GNU / Hurd remains the only actively developed Debian platform based on a non-Linux kernel (a port of Debian GNU / KFreeBSD was previously developed, but it has long been abandoned). The GNU / Hurd platform is not one of the officially supported architectures for Debian 11, so Debian GNU / Hurd 2021 is released separately and has the status of an unofficial Debian release. Prebuilt images provided with a specially crafted graphical installer, and packages are currently only available for the i386 architecture. The NETINST installation images, CDs and DVDs, as well as an image for launching in virtualization systems are prepared for downloading .

GNU Hurd is a kernel developed as a replacement for the Unix kernel and is designed as a set of servers running on top of the GNU Mach microkernel and implementing various system services such as file systems, networking stack, and file access

control system. The GNU Mach microkernel provides an IPC mechanism used to organize the interaction of GNU Hurd components and build a distributed multiserver architecture.

<https://lists.debian.org/debian-hurd/2021/08/msg00040.html>

Ardor 6.9 Free Sound Editor Released:

08/14/2021

Ardor 6.9 , intended for multichannel recording, processing and mixing of sound, is out. Ardor provides a multitrack timeline, an unlimited rollback level for the entire duration of working with a file (even after closing the program), and support for a variety of hardware interfaces. The program is positioned as a free alternative to professional tools like ProTools, Nuendo, Pyramix and Sequoia. The code is distributed under the GPLv2 license. Linux prebuilt builds are available in Flatpak format .

<https://discourse.ardour.org/t/ardour-6-9-released/106273>

Debian 11 "Bullseye" Released:

08/15/2021

After two years of development the Debian the GNU / the Linux 11.0 (Bullseye), available for nine of officially supported architectures : Intel IA-32 / x86 (i686), AMD64 / x86-64, ARM EABI (armel), 64-bit ARM (arm64), ARMv7 (armhf), mipsel, mips64el, PowerPC 64 (ppc64el) and IBM System z (s390x). Updates for Debian 11 will be released for 5 years.

Installation images, can be downloaded on the HTTP , jigdo or BitTorrent . Also, an unofficial nonfree installation image has been generated, which includes proprietary firmware. For amd64 and i386 architectures, LiveUSB has been developed, available in variants with GNOME, KDE, LXDE, Xfce, Cinnamon and MATE, as well as a multi-architecture DVD that combines packages for the amd64 platform with add-on packages for the

i386 architecture.

There are 59551 binary packages in the repository (42821 source packages), which is about 1848 packages more than what was proposed in Debian 10. Compared to Debian 10, 11294 new binaries were added, 9519 (16%) obsolete or abandoned packages were removed, 42821 updated (72%) packages. The total total size of all sources offered in the distribution is 1,152,960,944 lines of code. 6208 developers took part in the preparation of the release.

For 95.7% of packages, support for repeatable builds are provided, which allows you to confirm that the executable file is built exactly from the declared sources and does not contain extraneous changes.

<https://www.debian.org/News/2021/20210814>

Apache OpenMeetings 6.1 web conferencing server released:

08/16/2021

The Apache Software Foundation has announced the release of the Apache OpenMeetings 6.1, a web conferencing server which enables audio and video conferencing over the Web, as well as collaboration and messaging between participants. Both webinars with one speaker and conferences with an arbitrary number of participants interacting with each other are supported. The project code is written in Java and distributed under the Apache 2.0 license.

Additional features include: tools for integrating with a calendar-scheduler, sending individual or broadcast notifications and invitations, sharing files and documents, maintaining the address book of participants, keeping an event protocol, jointly scheduling tasks, broadcasting the output of running applications (screencast demonstration), conducting polls and polls.

One server can serve an arbitrary number of conferences held in separate virtual conference rooms and including its own set of participants. The server supports flexible permissions management tools and a powerful conference moderation system. Management and interaction of participants is carried out through the web interface. OpenMeetings code is written in Java. MySQL and PostgreSQL can be used as a DBMS.

<https://blogs.apache.org/openmeetings/entry/openmeetings-v6-1-0-webrtc>

The PINE64 project introduced the PineNote e-book:

08/16/2021

The Pine64 community, unveiled the PineNote e-book, equipped with a 10.3-inch e-ink screen. The device is based on

a Rockchip RK3566 SoC with a quad-core ARM Cortex-A55 processor, AI-accelerator RK NN (0.8Tops) and GPU Mali G52 2EE (OpenGL ES 3.2, Vulkan 1.1, OpenCL 2.0), which makes the device one of the highest performing devices in its class. PineNote is currently in a preproduction prototype stage. It is scheduled to go on sale this year for \$ 399. PineNote software is based on Linux - support for the Rockchip RK3566 SoC is already included in the main Linux kernel during the development of the Quartz64 board. The e-paper screen driver is still under development but will be ready for production. The first batches are planned to be released with Manjaro Linux preinstalled and Linux 4.19 kernel. They plan to use KDE Plasma Mobile or a slightly modified KDE Plasma desktop desktop as a custom shell. However, the development has not yet been completed and the final software filling will depend on how the selected technologies behave on the screen based on electronic paper.

<https://www.pine64.org/2021/08/15/introducing-the-pinenote/>

Slackware 15 RC Published:

08/16/2021

Patrick Volkerding announced testing of the release candidate for the Slackware 15.0 distribution, which marked the freeze of most packages prior to release and a focus on the remaining release-blocking bugs. An installation image of 3.1 GB in size (x86_64) is prepared for download, as well as a minimal image for running in Live mode.

Slackware has been around since 1993 and is the oldest distribution in existence. The distribution's features are its lack of complications and a simple init system in the style of classic BSD systems, which makes Slackware an interesting solution for learning how Unix-like systems work, experimenting and getting to know Linux.

Slackware 15 has updated versions of software, including the upgrade to the Linux 5.13 kernel, the GCC 11.2 compiler set, and the Glibc 2.33 system library. Desktop components have

been updated to KDE Plasma 5.22 and KDE Gear 21.08.

http://www.slackware.com/changelog/current.php?cpu=x86_64

Git 2.33 source control released:

08/17/2021

After two months of development, the release of the distributed source control system Git 2.33 was published. Git is one of the most popular, reliable and high-performance version control systems, providing flexible non-linear development tools based on branching and merging. To ensure the integrity of history and resistance to changes "retroactively", implicit hashing of the entire previous history in each commit is used, and it is also possible to certify with digital signatures, the developers of individual tags and commits.

Compared to the previous release, 649 changes were adopted in the new version, prepared with the participation of 74 developers, of which 19 took part in the development for the first time.

<https://lkml.org/lkml/2021/8/16/1323>

A new Pale Moon Browser version:

08/18/2021

A release of the Pale Moon 29.4 web browser is now available, a fork of the Firefox codebase to provide better performance, preserve the classic interface, minimize memory consumption, and provide additional customization options. Pale Moon builds are available for Windows and Linux (x86 and x86_64). The project code is distributed under the MPLv2 license (Mozilla Public License).

The project adheres to the classic layout of the interface, without switching to the Australis interface integrated into Firefox 29, and providing ample customization options. Remote components include DRM, Social API, WebRTC, PDF viewer,

Crash Reporter, code for collecting statistics, parental controls, and people with disabilities. Compared to Firefox, the browser retains support for XUL technology and retains the ability to use both full-fledged and lightweight themes. Pale Moon is built on the UXP (Unified XUL Platform) platform, where the Firefox components are forked from the Mozilla Central repository, free of bindings to the Rust code and not including the work of the Quantum project.

<https://forum.palemoon.org/viewtopic.php?t=27260&p=219173>

MATE 1.26 released:

08/19/2021

After a year and a half of development, the release of the MATE 1.26 desktop environment has been published. The development of the GNOME 2.32 code base has been continued while maintaining the classic desktop. Installation packages with MATE 1.26 will soon be ready for the Linux Arch, the Debian, of Ubuntu, the Fedora, the openSUSE , the ALT and other distributions.

<https://mate-desktop.org/blog/2021-08-08-mate-1-26-released/>

LibreOffice 7.2 Released:

08/19/2021

The Document Foundation has presented the release of LibreOffice 7.2. Ready-made installation packages are prepared for various Linux, Windows and macOS distributions. In preparation for the release, 70% of the changes were made by people in charge of the project, such as Collabora, Red Hat, and Allotropia, and 30% of the changes were contributed by independent enthusiasts.

The LibreOffice 7.2 release is tagged as "Community", will be supported by enthusiasts, and is not intended for enterprise use. LibreOffice Community is available without restrictions to everyone without exception, including corporate users. For

enterprises requiring additional services, the LibreOffice Enterprise family products are separately developed, for which partner companies will provide full support, the ability to receive long-term updates (LTS) and additional functions such as SLA (Service Level Agreements).

<https://blog.documentfoundation.org/blog/2021/08/19/libreoffice-7-2-community/>

Rspamd 3.0 spam filtering available:

08/19/2021

The spam filtering system Rspamd 3.0 is out, which provides tools for evaluating messages according to various criteria, including rules, statistical methods and blacklists, on which the final message weight is formed, which is then used to decide whether to block it or not. Rspamd supports almost all of the capabilities of SpamAssassin, and has a number of features that allow you to filter mail on average 10 times faster than SpamAssassin, as well as provide better filtering quality. The system code is written in C and is distributed under the Apache 2.0 license. The major increase in the version number is due to significant changes in the internal architecture, specially in the parts that ensure the parsing of HTML, which have been completely rewritten. The new parser parses HTML using the DOM and forming a tag tree. The new release also introduces a CSS parser that, when combined with the new HTML parser, allows you to correctly extract data from emails with modern HTML markup, including distinguishing between visible and invisible content. It is noteworthy that the parser code is written not in C, but in C++ 17, which requires a compiler with support for this standard.

<https://rspamd.com/announce/2021/08/19/rspamd-3.0.html>

Manjaro Linux 21.1.0 Distribution Released:

08/19/2021

The release of the Manjaro Linux distribution, built on Arch

Linux and aimed at novice users, was announced. The distribution is notable for the presence of a simplified and user-friendly installation process, support for automatic hardware detection and installation of the drivers necessary for its operation. Manjaro comes in live builds with the KDE (3 GB), GNOME (2.9 GB) and Xfce (2.7 GB) graphical environments. Builds with Budgie, Cinnamon, Deepin, LXDE, LXQt, MATE and i3 are additionally developed with community participation .

To manage repositories, Manjaro uses its own BoxIt toolkit, designed in the same way as Git. The repository on a rolling basis, but new versions go through an additional stage of stabilization. In addition to its own repository, there is support for using the AUR (Arch User Repository) repository. The distribution is supplied with a graphical installer and a graphical interface for configuring the system.

<https://forum.manjaro.org/t/manjaro-21-1-0-pahvo-released/78663>

Release of BusyBox 1.34:

08/20/2021

The release of the BusyBox 1.34 package is presented with the implementation of a set of standard UNIX utilities, designed in the form of a single executable file and optimized for minimum consumption of system resources when the package size is less than 1 MB. The first release of the new 1.34 branch is positioned as unstable, full stabilization will be provided in version 1.34.1, which is expected in about a month. The project code is distributed under the GPLv2 license. BusyBox is the main tool in the fight against GPL violation in firmware. The Software Freedom Conservancy (SFC) and the Software Freedom Law Center (SFLC), on behalf of BusyBox developers, have repeatedly successfully influenced companies that do not provide access to the source code of GPL programs through the courts and through the conclusion of out-of-court agreements. At the same time, the author of BusyBox strongly objects to such protection, believing that it breaks his business.

<https://busybox.net/news.html>

Nftables Packet Filter 1.0.0 Released:

08/20/2021

The nftables 1.0.0 packet filter has been released, which unifies the packet filtering interfaces for IPv4, IPv6, ARP, and network bridging (aims to replace iptables, ip6table, arptables, and ebtables). Changes necessary for the release of nftables 1.0.0 to work are included in the Linux 5.13 kernel. A major change in the version number is not associated with any cardinal changes, but is only a consequence of the sequential continuation of numbering in decimal (the last release was 0.9.9). The nftables package contains user-space packet filter components, while the nf_tables subsystem, which has been part of the Linux kernel since release 3.13, provides kernel-level functionality. At the kernel level, only a generic interface is provided that is protocol agnostic and provides basic functions for extracting data from packets, performing data operations, and controlling flow.

The filtering rules and protocol-specific handlers are compiled into user-space bytecode, after which this bytecode is loaded into the kernel using the Netlink interface and executed in the kernel in a special virtual machine resembling BPF (Berkeley Packet Filters). This approach allows you to significantly reduce the size of the filtering code working at the kernel level and move all the functions of parsing rules and logic for working with protocols into user space.

<https://www.mail-archive.com/netfilter-announce@lists.netfilter.org/msg00231.html>

OpenSSH 8.7 released:

08/20/2021

After four months of development, OpenSSH 8.7 is presented, an open implementation of a client and server for working with the SSH 2.0 and SFTP protocols.

Notably: An experimental data transfer mode has been added to scp using the SFTP protocol instead of the traditionally used SCP / RCP protocol. SFTP uses a more predictable method of handling names and does not use shell glob template processing on the other host's side, which poses a security problem. The "-s" flag has been proposed to enable SFTP in scp, but in the future it is planned to switch to this protocol by default.

<https://lists.mindrot.org/pipermail/openssh-unix-dev/2021-August/039543.html>

Valve releases Proton 6.3-6:

08/21/2021

Valve published Proton 6.3-6 , which is based on Wine and aims to get games and applications to run on Linux, designed for Windows and presented in the Steam directory. The code is distributed under the BSD license.

Proton allows you to directly run Windows-only gaming applications on the Steam Linux client. The package includes the implementation of DirectX 9/10/11 (based on the DXVK package) and DirectX 12 (based on vkd3d-proton), working through translation of DirectX calls to the Vulkan API, provides improved support for game controllers and the ability to use full screen mode regardless of supported in games screen resolutions. " Esync " (Eventfd Synchronization) and " futex / fsync " mechanisms are supported to increase the performance of multi-threaded games

<https://github.com/ValveSoftware/Proton/releases/tag/proton-6.3-6b>

Bubblewrap 0.5.0, sandboxes for creating isolated environments:

08/21/2021

Bubblewrap 0.5.0 sandboxed environment is available,

typically used to restrict individual applications of unprivileged users. In practice, Bubblewrap is used by the Flatpak project as a layer to isolate bundled applications. The project code is written in C and is distributed under the LGPLv2+ license.

For isolation, traditional Linux container virtualization technologies are used, based on the use of cgroups, namespaces, Seccomp and SELinux. To perform privileged operations on configuring the container, Bubblewrap is launched as root (an executable file with a `suid` flag) and then reset privileges after the initialization of the container is complete. The key difference from the similar Firejail project, which also uses a `setuid` launch model, is that in Bubblewrap the layer for creating containers includes only the necessary minimum of capabilities, and all the advanced functions necessary for launching graphical applications, interacting with the desktop and filtering calls to Pulseaudio, moved to the Flatpak side and are executed after the privileges are dropped. Firejail, on the other hand, combines all the related functions in one executable file, which makes it difficult to audit and maintain security at the proper level .

<https://github.com/containers/bubblewrap/releases/tag/v0.5.0>

Shattered Pixel Dungeon 1.0 Released:

08/21/2021

The release of Shattered Pixel Dungeon 1.0, a turn-based game in the roguelike genre is out. It offers dynamically generated dungeon levels, collecting artifacts, training a character and defeating monsters. The game uses pixel graphics. The code is written in the Java language and is distributed under the GPLv3 license. Launch files are prepared for Android, iOS and desktop systems.

Release 1.0 is marked as the first full-fledged release of the project, which is no longer marketed as unfinished. The game offers a choice of four types of characters (warrior, magician, robber and huntress), each of which has strengths and weaknesses. In turn, a character, depending on experience, can

occupy one of 8 subclasses. Additionally, over 100 talents are offered to enhance the player and 13 separate abilities that provide special strength in the final battle. More than 100 types of weapons and equipment are available. The player is invited to go through 26 underground floors with unique enemies and level schemes. There are over 60 types of enemies, 30 traps and 5 main villains.

[*https://shatteredpixel.com/blog/shatteredpd-v100-and-ios-release.html*](https://shatteredpixel.com/blog/shatteredpd-v100-and-ios-release.html)



DistroWatch.com

Put the fun back into computing. *Use Linux, BSD.*



The Ubuntu Podcast covers all the latest news and issues facing Ubuntu Linux users and Free Software fans in general. The show appeals to the newest user and the oldest coder. Our discussions cover the development of Ubuntu but aren't overly technical. We are lucky enough to have some great guests on the show, telling us first hand about the latest exciting developments they are working on, in a way that we can all understand! We also talk about the Ubuntu community and what it gets up to.

The show is presented by members of the UK's Ubuntu Linux community. Because it is covered by the Ubuntu Code of Conduct it is suitable for all. The show is broadcast live every fortnight on a Tuesday evening (British time) and is available for download the following day. podcast.ubuntu-uk.org

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The VirtualBox Networking Primer

Connecting and Configuring Virtual Machines



The VirtualBox Networking Primer is a no-nonsense guide for

the VirtualBox user taking their next steps into virtual networks. While Oracle VM VirtualBox is a great free tool, the real power of virtualisation comes when you start connecting virtual machines to each other and to the wider world. Software development, sales, education and training are just some of the areas in which network access to virtual machines offers endless opportunities. But the world of computer networks is filled with complex technical jargon.

Complete with principles, practice, examples and glossary, The VirtualBox Networking Primer takes the frustration and confusion out of connecting real-world projects.

Author: **Robin Catling**

Publisher: Proactivity Press

ISBN13 : 9781916119482

Amazon US link:

[https://www.amazon.com/dp/1916119484?
ref_=pe_3052080_397514860](https://www.amazon.com/dp/1916119484?ref_=pe_3052080_397514860)

Amazon UK link:

[https://www.amazon.co.uk/VirtualBox-Networking-Primer-Connecting-Configuring/dp/1916119484/ref=sr_1_1?
dchild=1&keywords=virtualbox+networking
+primer&qid=1600253699&s=books&sr=1-1](https://www.amazon.co.uk/VirtualBox-Networking-Primer-Connecting-Configuring/dp/1916119484/ref=sr_1_1?dchild=1&keywords=virtualbox+networking+primer&qid=1600253699&s=books&sr=1-1)

Kobo:

<https://www.kobo.com/us/en/ebook/the-virtualbox-networking-primer>

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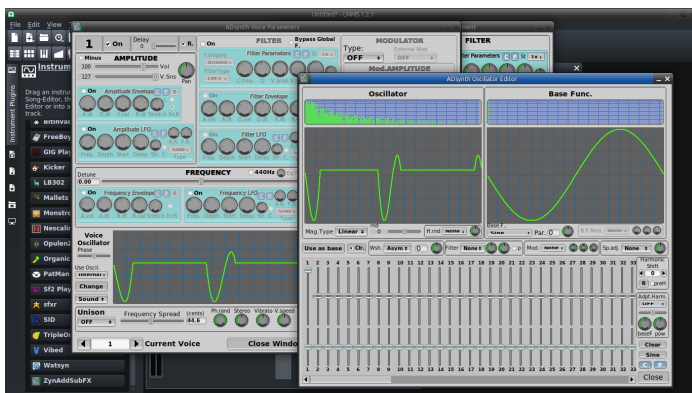
Command & Conquer - LMMS part 8

Written by Erik

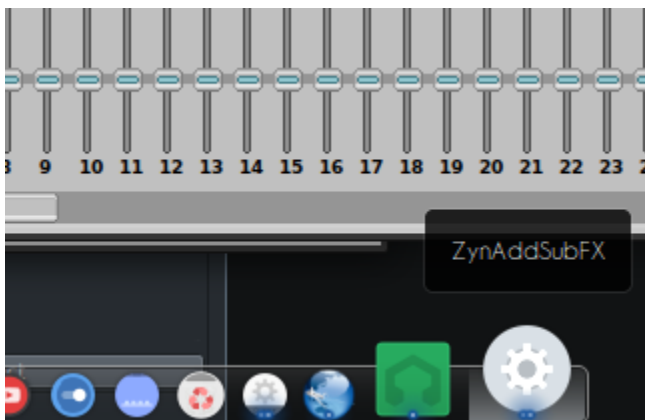
I hope you have paid attention to the last two issues, as this month we will be steaming ahead. If you did not, I strongly advise that you do. However, to avoid confusion, we are looking into ZynaddsubFX (Zyn from now on) that comes with LMMS. I want you to know that as ugly as Zyn is, (Ugly as Zyn... OK, I'll see myself out) you can make almost any synth out there on the market with this. Not kidding!

Fire up LMMS and let's start!

So how do we use what we have learned so far? By doing, of course! Please navigate to the addsynth oscillator editor and let's discuss the base vs harmonics and all the related buttons and knobs, as they are really daunting for someone who has never played with them. I know I had a hard time, so I hope to ease it for the next guy. The base is on your right, but say you have done something with the harmonics side on the left that interests you or sounds really good and you want to build on it, you can then simply click the button below the harmonics marked, 'use as base' to add it to the base side, so you are not limited to the drop down list on the base side. If you are unsure of what you can actually do, then there is a button for that too... :)



The button is 'wsh' – short for wave shaper. Right next to the 'use as base' and to let you mess with it, it has a knob. Oooh more knobs! Well, pass me that spoon Pinky, this is brain surgery, not rocket science. Yes, you will have to remember which knobs you turned in the hundreds that there are if you bungle it, so small changes at a time. What I like about LMMS on Ubuntu is that I get tw icons in my dock when working with Zyn, and it makes it easy to switch back and forth to get to my Zyn GUI so I can tinkle on the piano keys to hear what my changes sound like. BTW, I use Xubuntu with plank, mileage may vary on other docks. However, the point I was getting to, is that you need to play with it to 'get' it. I am not referring to you guys with degrees in music, but us regular plebs. The switching back-and-forth will allow you to hear the subtle changes your tweaks make.



Now on top of this, there is a filter to the right of it, that you can apply to your harmonics, with a list of the usual suspects, HP for high pass, LP for low pass and so forth. The filter pre-sets have their own buttons again, allowing you to tweak even more! See, I told you that you can create almost any other synth in Zyn. To the right of that you will see 'mod' – it does modify the sound, but it is actually short for modulation. Again, you need to play with these to understand what the sound changes to, but you can think of it as granularity as you move to the right. You are tuning finer and finer as we move right. (Not really 100%, but think of it that way and you won't steer yourself wrong.) The last one in the line is 'sp. adj.' which is short for spectrum adjust. No pack away that Sinclair machine, it is not that type of Spectrum.

To the right of all the sliders, you will see an 'harmonic shift' block. There is a catch to this one, it used to be inverted. What I mean by this is that if you use an older version, clicking the right arrow would move the harmonics to the right and vice-versa. If you are on version numbers greater than 1.0, then it works the other way around. (Right way?) Anyway, just be aware of this when you have different versions, say a deb and a snap. Should you make a mistake, the 'R' button is for reset. Yes, it gets a bit hairy for newcomers, I know, I have been there, or should I say I am still there, as my music degree is probably still in the mail for life, but this really needs a UI makeover to make it newbie-friendly. (But where will FCM be bringing you all these lovely informational snippets, if it was simple?) You can probably guess that 'adpt harm' below that, is short for adapt harmonics. This is great for creating game sounds, hint-hint, nudge-nudge, wink-wink. The clear button only clears the harmonics settings, so your base and harmonic waves will stay as they were before we started turning knobs. The interesting one, is the 'Sine' button below it. It takes your base function, converts it to a sine wave and applies your changes that you made to said sine wave, regardless if the previous base was square or triangle, etc.

If you are a perfectionist or have OCD and the like, I do not recommend that you come here, as this is a time sink of note. I

have spent hours here just fine tuning a saw wave, yes, a saw wave – laugh if you must, but it is very addictive.

I hope this demystifies some of the arb acronyms and button functions for you if you are a total newbie to LMMS and Zyn.

As always, if I made a mistake, please let us know at:
misc@fullcirclemagazine.org

Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.

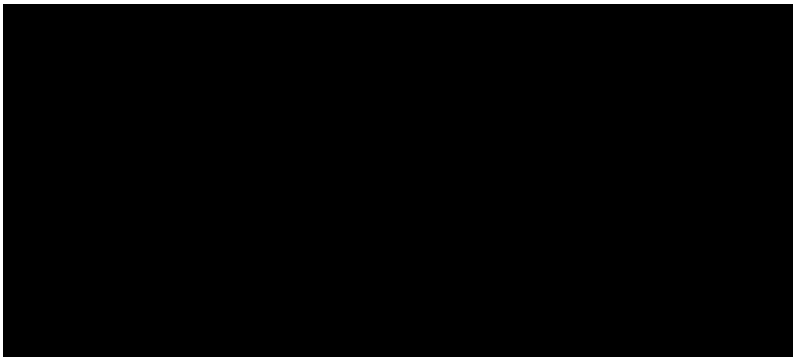
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How To - Python in the REAL World - Part 120

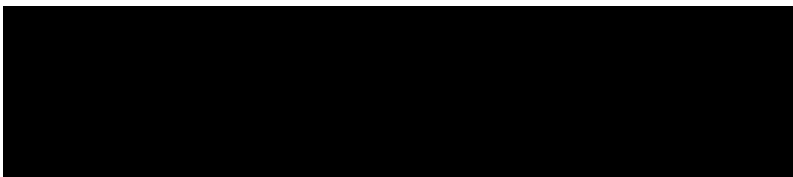
Written by Greg Walters

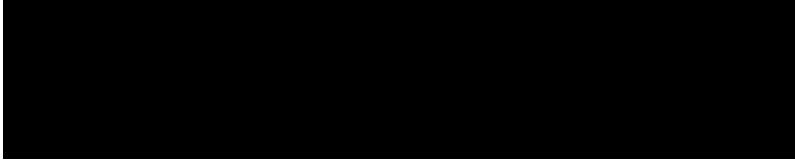
Well, I've made it. 10 full years worth of Python articles in the series. Actually, it's been over 10 years in calendar time, but as far as articles are concerned, it's 10 years worth. Thank you, dear readers, for hanging in with me for so long.

Way back in the dawn of time, when rainbows were in black-and-white, and we had to watch television by candlelight because electricity hadn't been invented yet, one of the first programming languages I learned well was Pascal. Along with everything else that Pascal had to offer, there was a data structure named Records. Records were special User Defined data types that would allow the programmer to set up a logical grouping of data using existing primitive types line string, integers, reals, and so on. When we would define a record, it would look something like this...



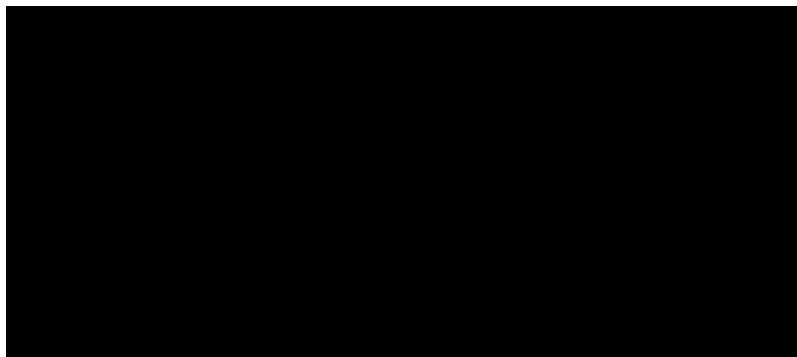
And then to put data into the record, we would do something like this.





And so on. We could use an array of the records to maintain a very simple database type structure.

Run the clock forward, and I eventually added Visual Basic (both DOS and Windows versions) to my toolkit of programming languages. Visual Basic also had a similar user defined type, but it was called a structure. You would define the structure like this:



And on and on. When I came to Python (it was back before 3.0 came out), there wasn't a convenient data structure like these. Having done a tonne of database work in my previous projects, I was somewhat at a loss. How could such a cool programming language like Python not have a structure like other languages.

This month, we will be looking at dataclasses, something that was introduced back in Python 3.7:

- *Namedtuples were introduced back in Python 2.6 but namedtuples, like any tuples, are immutable.*
- *Dataclasses are easy to use, easy to read, and are mutable.*

We'll create a very simple (and unrealistic) small book store point of sale demo. Here's how to start working with dataclasses.

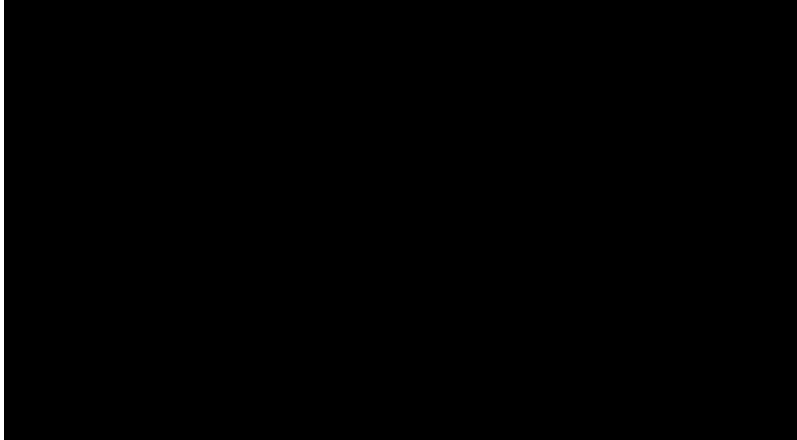
First, you have to import them into your project. They are a

part of the dataclasses library.

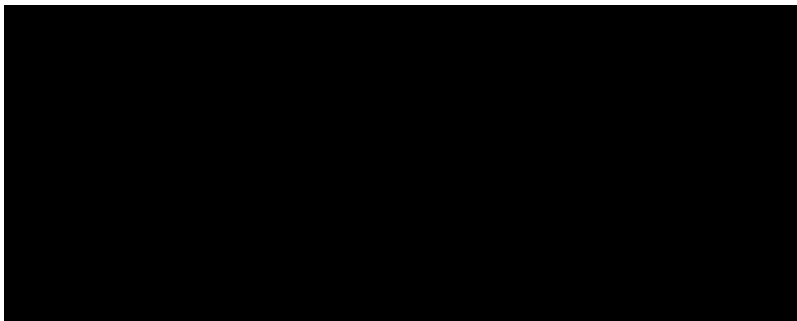
Next, you need to add a decorator to start defining your class. The dataclass is like almost any other classes, but the **init** and **repr** functions, as well as a few other basic functions, are automatically created for you. We'll take the structure from the discussion above...

Notice I added a field, QtyOnHand in our example. This makes it a bit more realistic but still minimal and a good way to demo the dataclass. At this point, we need to define an empty list to hold the record structures, and then create our in memory "database" by creating various "books" that will be in our imaginary store inventory.

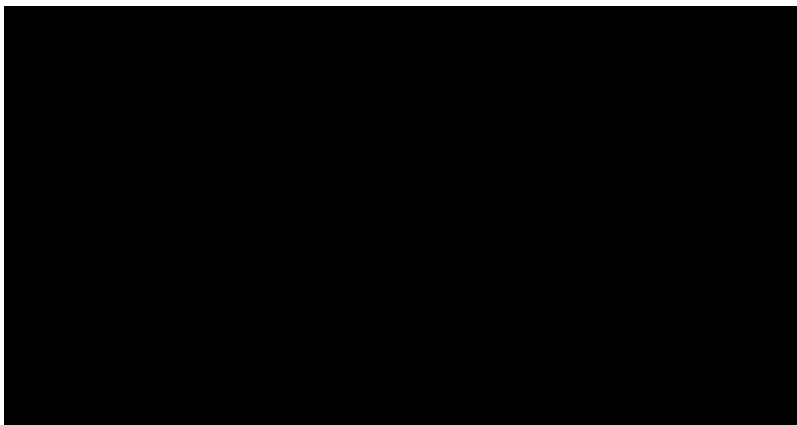
To make things a bit cleaner, we'll create a function to do all the "database" entries at one time. We load the data into the dataclass and then append it to the myRecs list and "rinse and repeat". I'll show the creation of only three records, but in the demo file from the repository, I create five records. The main thing I want to show here is that inserting data into a dataclass is simple. So simple in fact, that, assuming you maintain the order of variables, you don't have to include the field names. If you don't keep the order of the variables, you must include the field names.



Now that we have that taken care of, we can create some simple functions to interact with the user. The first one will show a list of all the items in the “database” including the quantity on hand. Let’s call it “books” to keep things simple.

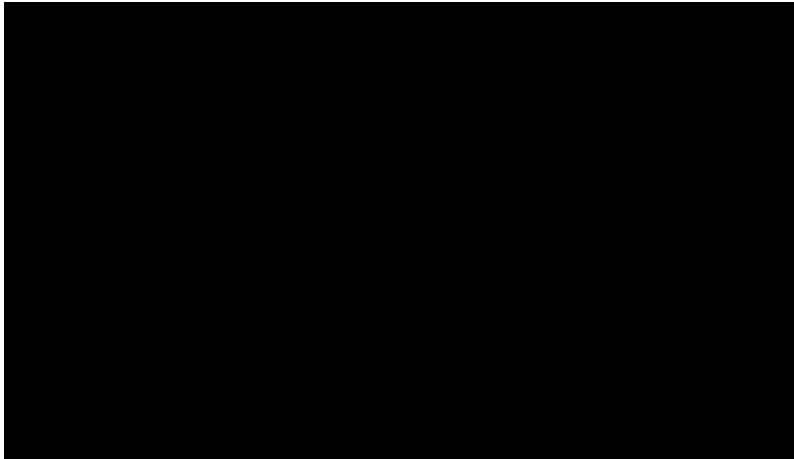


When the function `books` is called, the output will look like this...

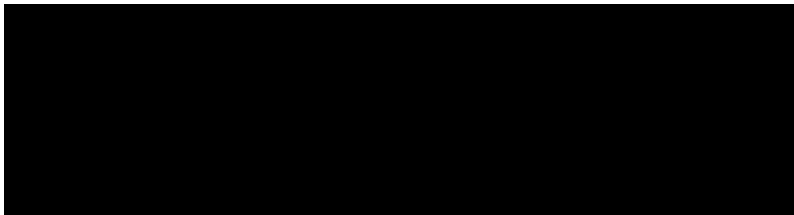


So you should see that it's not only easy to put data into the dataclass record structure, but also to get the data that you want out just as easily.

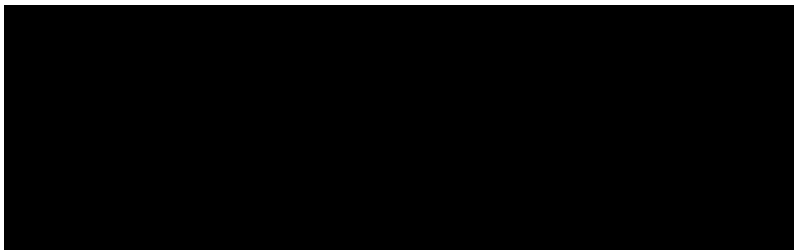
Now let's create a function to search the recordset by author. Again, this is not a realistic search function, just a very simple one. The author name must be entered the way it is when it was put into the dataclass instances.

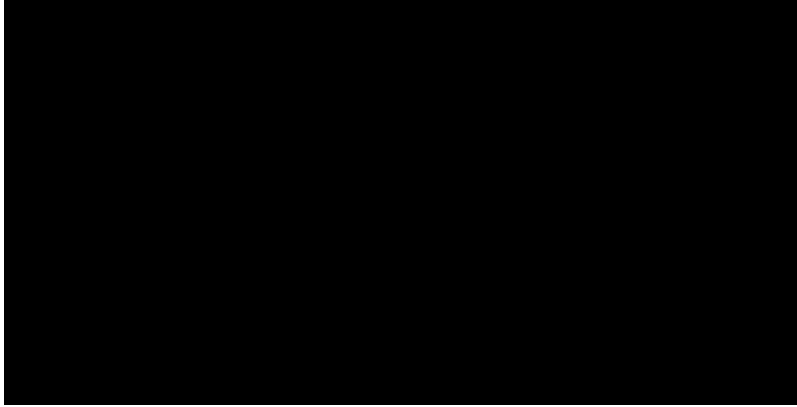


The output of the search function for Author looks like this...

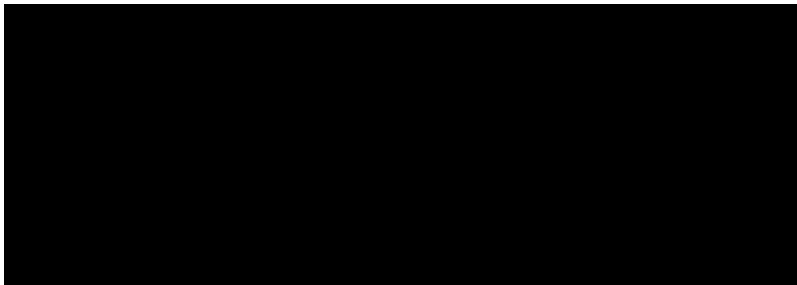


Now another simple function to search by book title. Remember, I'm not trying to cover any typos, capitalization errors, etc. Just trying to make it simple to show the ease of dealing with searching the data.

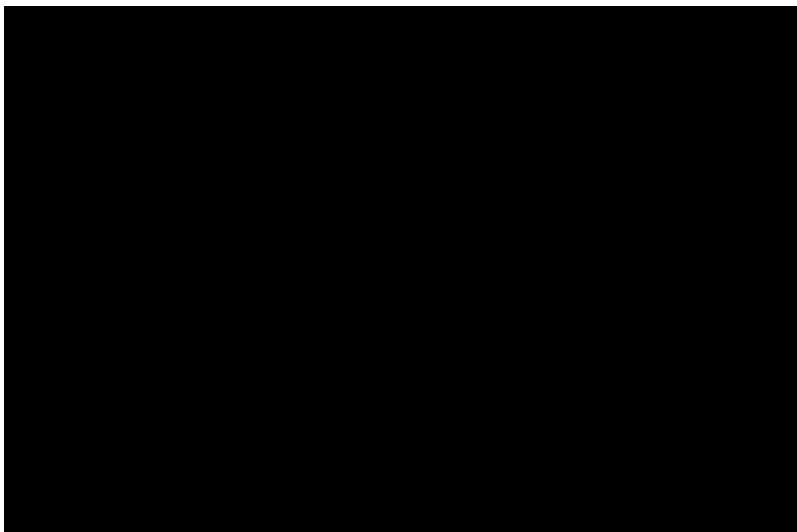




And it's output is like this...

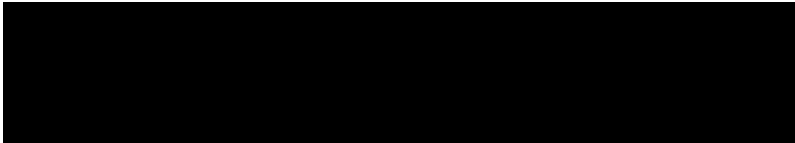


We'll create one more very simple search function, this time by ISBN.

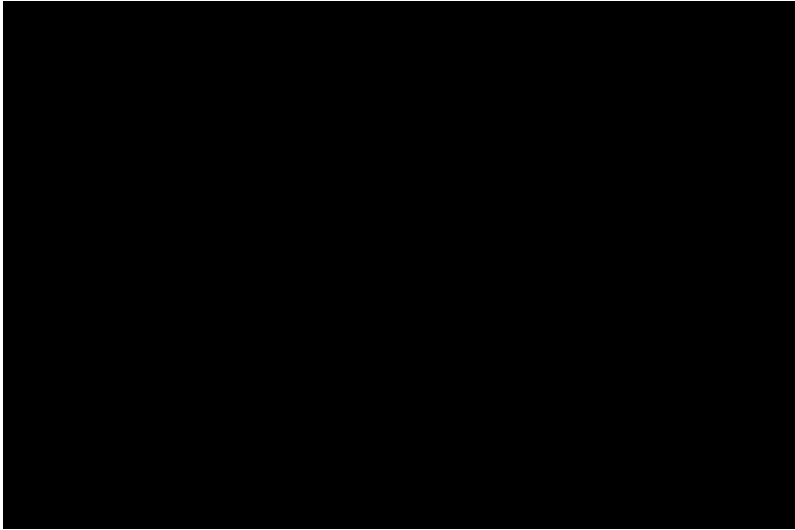


The output is as follows:

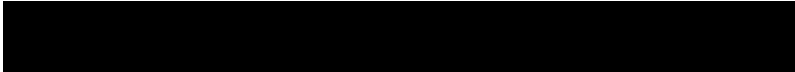




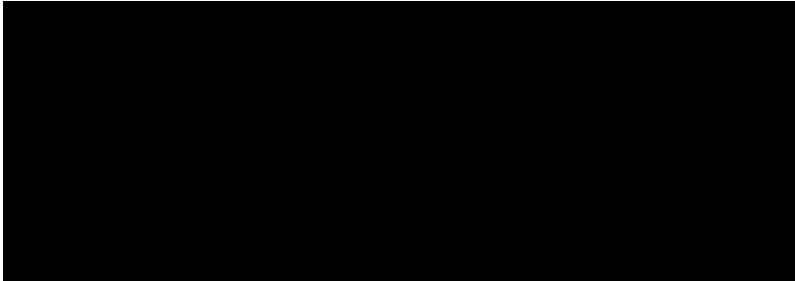
Now that we've covered the simple search functions, it only makes sense to add a function to “sell” one of our books. This also shows how easy it is to modify one of the dataclass items. We'll “sell” one of our two copies of “I Robot”.

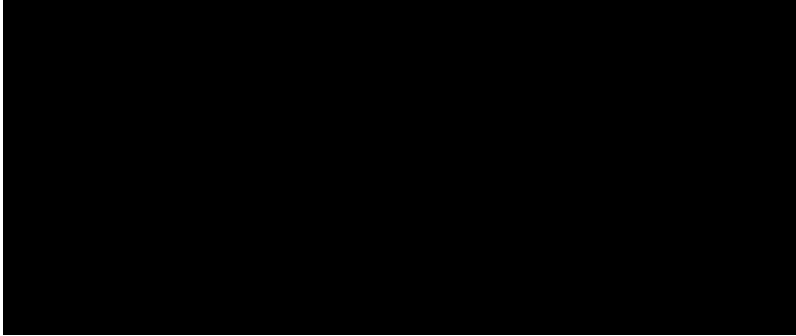


While not grammatically correct, here is the output. (As my sainted mother would say, “Do as I say do, not as I do do.”)

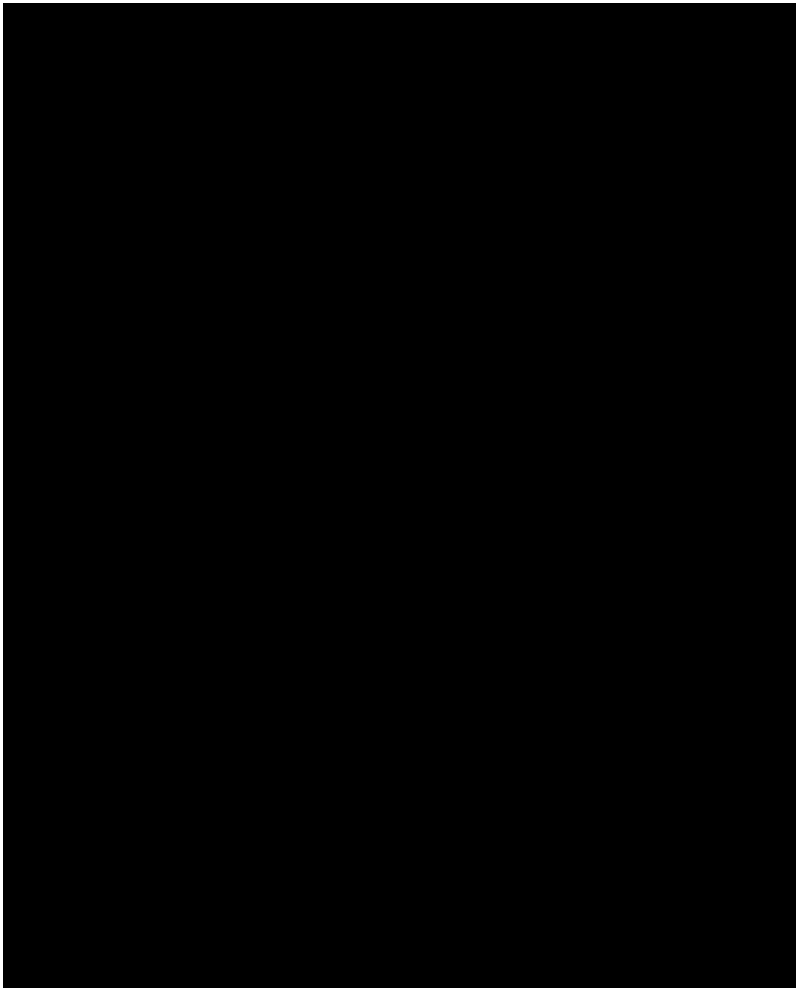


And just to make sure, you can call for a refresh of the book data, the list of books shows that we did in fact decrement the quantity-on-hand for that book by calling the book function.





Now, last but not least, let's create a “work” loop that offers a simple menu to handle the calls to the various functions...



So, I hope you find the use of dataclasses helpful in your future projects.

If you want to learn more about Python dataclasses, you would do well to check out the really good discussion and guide at Real Python (<https://realpython.com/python-data-classes/>) written by Geir Arne Hjelle.

You'll be able to find the code for this month's article at my github repository at <https://github.com/gregwa1953/FCM-172> .

Until next time, as always; stay safe, healthy, positive and creative! Greg

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How-To - Eternal Terminal

Written by Erik

Website: <https://eternalterminal.dev/>

Github: <https://github.com/MisterTea/EternalTerminal>

So my eye caught an article (<https://ostechnix.com/eternal-terminal-remote-shell-automatically-reconnects-without-interrupting-session/>) It is like MOSH, but with scrolling.

I was looking up persistent SSH connections for hand held scanners – a big problem we have at work – and I thought it may be fun to try it out. However, the article above seemed a little Arch Linux oriented and terse, so I thought you may like an Ubuntu beginners version:

Installation on Ubuntu is as simple as adding a PPA. For those of you that don't like PPA's, you can build it from scratch too.

Code:

The catch is that it requires et to be installed on BOTH sides, client and server. To check if it is running on your server simply type:

You use it the same way that you use SSH. The syntax of the command is: `et username@ <ip address> :{port}` .

To connect to a remote machine, you only need to provide the port number if you changed the default. If no user name is provided, the tool uses the current user name on the host machine to connect with the remote server.

To terminate your connection, the same as with SSH, just press CTRL + d.

How it works:

You connect to the remote machine via SSH in the background and once you have a connection, you continue as normal. Now, when the connection drops, the terminal no longer echoes what you type. If you did not look when this happened, the keystrokes you typed are kept in a buffer until the connection resumes, so not all hope is lost. There is no saving grace should your power trip though, so it is not a magic bullet.

Because et tries it's level best to keep that connection, if something happens on your side, you need to kill that connection and start over. The way to do it is with -x. Specifically: `et -x username@ <ip address> :{port}`

This will kill those background processes and start your connection fresh.

This is handy if you have somewhere you need to connect where the WiFi is bad, like in a warehouse or area with a lot of interference. Though many of you may ask, why would you need it, if you have SSH TMUX and screen? The problem with those three, is that, when you start to drop packets like it is nobody's business, they will hang. On a stable connection, the above trifecta will work flawlessly.

Now for the testing:

The scanners we have are a mixed bag, going back as far as Windows XP CE up to Honeywell android and then everything

in between.

The testing ended abruptly as it was not considered to be mature enough, even though the project has been around for four years. (and thus not allowed on the network)

However, we did go ahead and test it on a different network with a test server and an Ubuntu PC. Simulating a bad network, by turning the output on the router to its lowest possible setting and moving the PC out of range, I am happy to report that it did work, even recording all our scans from the USB hand-held scanner we used for input.

To the developers, great work! We need an android-compatible version please.

We did not test an IP change, time caught up to us, but that is what the application was designed for, so it should work.

Here is basically all you need to know, so I will not rehash it.

<https://eternalterminal.dev/howitworks/>

And more reading for those of you who would like to know the differences of the products mentioned above:

<https://grassfedcode.medium.com/what-could-be-better-than-ssh-e69561ec1b83>

Did we make a mistake? Tell us on misc@fullcirclemagazine.org

Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.

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How-To - Making a network print server

Written by Alan Ward

This will be a short note on how to connect a printer to your network using a Raspberry Pi. It is not meant to be a full tutorial, but rather some quick notes that may help you, the reader, if you find yourself in the same position I was.

I happen to be the proud owner of a HP Laserjet 2100 printer. This is a now ancient 1999-era piece of equipment that prints a tad more slowly than modern machines. On the positive side of things, however, its 1200 dpi resolution is more than satisfactory for office tasks even by today's standards. In a time of need, it was readily available in my back room, complete with a spare toner cartridge, and fired right up immediately after about seven years in storage. Also, I am not disposed to spend cash on a new piece of kit unless it outperforms my old stuff considerably, or to go through the hassle of acquiring, transporting and setting up a new printer.

The only feature I do miss on modern printers is network access. Although the Laserjet 2100 is a fine printer, its connectivity is limited to a single parallel port. Remember back when? I am sure older readers will, but youngsters may struggle with the concept. Anyway, the printer came with a parallel port-to-USB converter cable that works very well. I also had a spare Raspberry Pi lying around, and so was all set to plug the hardware in and build myself a 1999/2021 vintage network printer. The converter cable (black) went into the printer's parallel port on one end, and into one of the RPi's USB sockets on the other. I used a physical Ethernet cable (red) to connect the RPi to my home router, and a spare USB cable and telephone charger (white) to power the RPi. That was the hardware side of things taken care of.

Now, to set up printing: from the software point of view the obvious candidate is the Common UNIX Printing System, or CUPS. This can contain the print server software itself, printer drivers and a Web server to access and configure our printers from our main computer. It also implements the Internet Printing Protocol (IPP), a very simple and robust protocol that - in my opinion, at least - is far superior to Microsoft's SMB/CIFS printer sharing protocols as regards speed and dependability. Moreover, most modern network printers use this protocol, and, as a consequence, most operating systems also support it. The protocol can also be queried directly using a standard web browser, which helps a lot for configuration.

I installed CUPS (as root) using command:

```
[REDACTED]
```

Other software packages, including cups-daemon and printer-driver-gutenprint, were also installed automatically. The CUPS daemon is started, and set up to start automatically with sysctl. As a security feature, however, it is initially configured to listen on only the localhost interface (address 127.0.0.1):

```
[REDACTED]
```

To change this, we need to edit file /etc/cups/cupd.conf, and change the line reading:

```
[REDACTED]
```

to:

```
[REDACTED]
```

To allow configuration of the server from other computers in our network, I also needed to add several Allow stanzas further down in the same file:

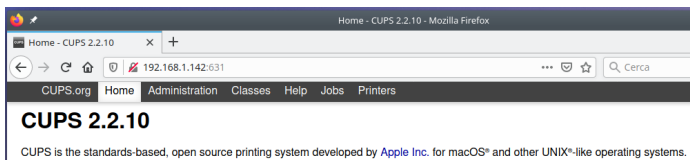
```
[REDACTED]
```



As shown, these are correct – assuming we are using IP addresses from block 192.168/16 on our local network; otherwise we would need to adapt to suit. It does make sense to open up administration to other machines on our local network, but not make our server accessible from further away. Once this is done and the file saved, we can restart CUPS using command:



We can now connect to our print server from any web browser on our network, using the IP address of the RPi on our network and port 631. For instance, if our RPi has IP address 192.168.1.142, we would use:



When adding a new printer, it is possible that our browser will complain of a bad certificate when switching to the HTTPS protocol. We can safely continue by accepting this certificate and adding a security exception. We may also need to authenticate. I logged in as the main user on the RPi. By

default, this is username “pi” and password “raspberry”, though it would perhaps be best to change the password at the very least.

I then went to the CUPS “Add Printer” option, where the Laserjet had been recognized and was offered for configuration.

Add Printer

Local Printers: ☐ CUPS-BRF (Virtual Braille BRF Printer)
☒ HP LaserJet 2100 Series (HP LaserJet 2100 Series)

Let us remember to actually share this printer, by checking the box.

Add Printer

Name:
(May contain any printable characters except "/", "#", and space)

Description:
(Human-readable description such as "HP LaserJet with Duplexer")

Location:
(Human-readable location such as "Lab 1")

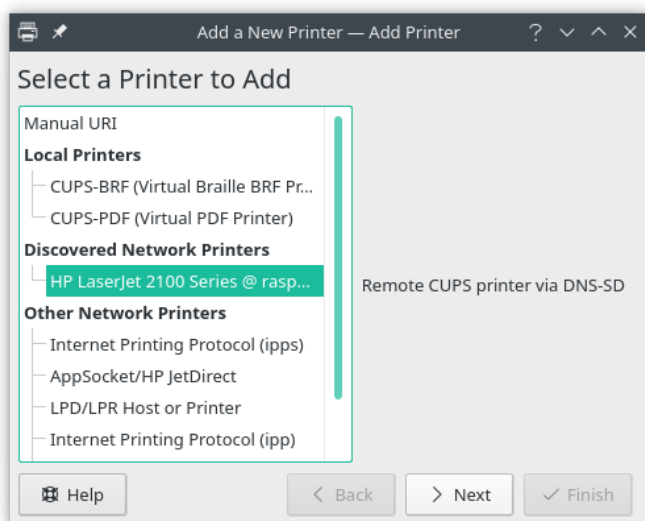
Connection: usb://HP/LaserJet%202100%20Series|HP LaserJet 2100 Series

Sharing: ☒ Share This Printer

On the client side of things, most modern Linux systems will automatically detect the presence of our new printer server, and automagically configure our new printer for us. In my case, on a Kubuntu 20.04, the new printer appeared immediately:

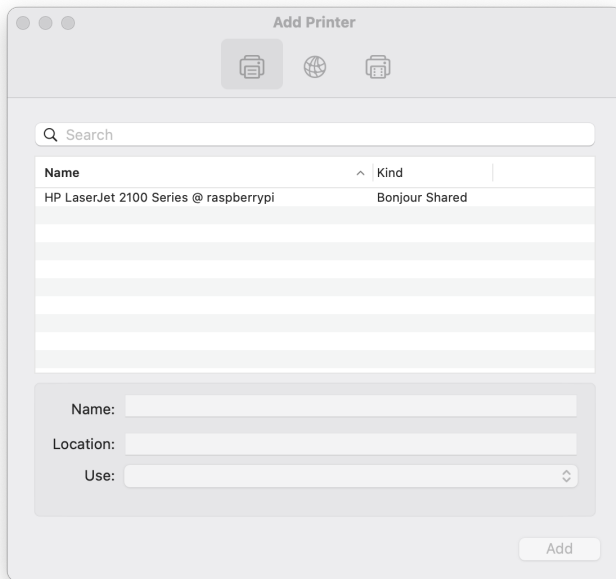


If this is not the case, simply go to the configuration panel and manually add the printer which should have been discovered on the network. For instance, on a recent Manjaro:

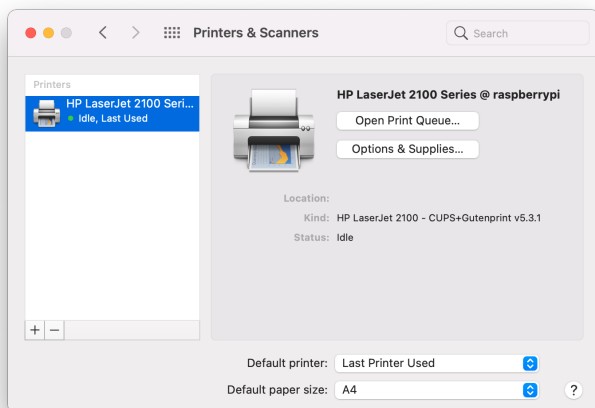


The great thing about CUPS is that it is a universal piece of software. The very same software has actually been baked into

Apple's Mac OS. Thus, the network printers advertised by the RPi over "dnssd" are readily recognized by the Mac as having been announced over "Bonjour".



The end result is identical, and the new printer can be configured with ease on Mac OS. No fiddling about with printer drivers was needed; the Mac and CUPS figured it out between them and within a minute I was printing away wildly. Note the Gutenprint drivers in use - these are the same as installed on a Linux CUPS implementation.



Things may be a tad different from a Windows machine for users who are accustomed to configuring printers over Windows printer sharing protocol (SMB/CIFS). In this case, the printer server on the RPi is communicating over IPP, so just browsing the local network in our file explorer on the Windows machine will not find it.

Instead, we need to get over to the Control Panel (or Settings, or whatever else it is called these days) and select “Devices (Bluetooth, printers, mouse)”, then “Add a printer or scanner”. This will search for our new printer server, but is just as likely to find the neighbor’s WiFi-connected ink-jet instead of our own RPi server. Simply choose “The printer that I want isn’t listed”, then “Add a printer using a TCP/IP address or hostname”. In my case, I entered (please note the :631 port number):



Find a printer by other options

☐ My printer is a little older. Help me find it.

☒ Select a shared printer by name

Browse...

Example: \\computername\printername or
http://computername/printers/printername/.printer

☐ Add a printer using a TCP/IP address or hostname

☐ Add a Bluetooth, wireless or network discoverable printer

☐ Add a local printer or network printer with manual settings

After jumping through a couple more hoops - such as telling Windows to use a printer driver meant for a completely distinct Postscript printer (the “HP Color Laserjet 2500 PS Class Driver”) - I got my new printer set up and working.



HP_LaserJet_2100
_Series on
http://192.168.1.1
42:631

For more details to set up IPP printers on Windows, there is a good tutorial on The Zedt: <https://zedt.eu/tech/windows/installing-an-ipp-printer-in-windows-10/> .

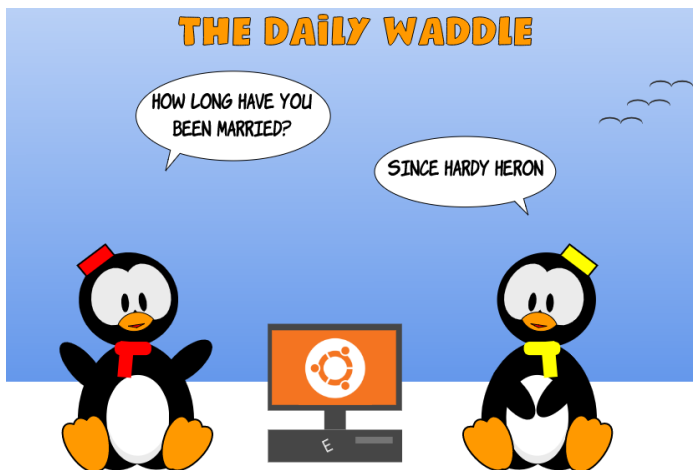
The end result was that, with a Raspberry Pi version 2 and a 20-year-old laser printer, I had a working, printing networked laser using the CUPS software. From plugging in the hardware, installing cups, to getting the system fully working on Linux and Apple machines on my local network, the complete process took about half an hour. Convincing my lone Windows laptop to print took a further hour of fiddling and searching for tutorials on the Web, which is probably par for the course.

Extending my server would be a simple matter of physically connecting another printer to the RPi, and configuring CUPS through the web interface. As a side note, most professional-grade printers of major brands tend not to be too complex to set up, especially when they are compatible with the Postscript language. Printers originally meant for “home use” may be more challenging to set up, for instance by requiring the use of specific drivers or even proprietary software kits and firmware. Some previous research may be a good idea to ensure compatibility between the printer and Linux before proceeding.

Alan holds a PhD in Information and the Knowledge Society. He teaches engineering at Escola Andorrana de Batxillerat (high-school). He has previously given GNU/Linux courses at the University of Andorra and taught GNU/Linux systems administration at the Open University of Catalonia (UOC).

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THE DAILY WADDLE



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How To - Drawing with Inkscape - Part 112

Written by Mark Crutch

I'm going to start this month with yet another complaint about the state of font support in web browsers. Once again, a single browser vendor has effectively scuppered a format that is supported by their peers, leaving us users and developers without a practical alternative.

I've written in the past about how Firefox's lack of support for SVG fonts effectively killed the format. This was a real blow: the ability for a web developer to dynamically modify fonts on-the-fly using JavaScript could have been truly revolutionary. More recently, it looked like SVG in OpenType would provide some new capabilities in terms of color fonts and bitmap support, but Google has closed the relevant issue on the Chromium bug tracker (#306078) with a status of WONTFIX, indicating that they won't be adding support for this format to the browser. Given Chrome's dominant market share, this effectively neuters some of the new font support in Inkscape 1.0 that I covered in part 108 of this series.

Variable fonts, as described in that article, already work and will continue to do so. It's the SVG in OpenType format that is now effectively dead, despite being supported in Firefox, Safari and even older versions of Edge. My own experiments suggested some level of support for the fonts I was using (e.g. the Gilbert Color font was rendered in Chrome, but only as a monochrome font). I now suspect that was due to the fonts themselves providing non-SVG fallback content, rather than Chrome providing any support at all for this format.

What's most disheartening about this development is that Google's primary reason for not supporting SVG in OpenType appears to be that they are developing their own format for

color fonts (again, embedded into OpenType). If you were in any doubt that Google might use their market dominance to force the direction of web standards, perhaps this will make you realise that a single vendor having so much control is not really in the best interest of the users. The need for multiple, independent rendering engines is the reason I continue to use Firefox as my daily driver. The battle against IE may have been won, but the war for a truly open and independent web still wages.

Time will tell whether or not Google's new format will win out, or font foundries will just embed both the Google and the SVG versions of color glyphs into ever-more-bloated font files. For now, however, despite Inkscape's support for color fonts – and its partial support for bitmap fonts – you might want to think twice about using these in your projects.

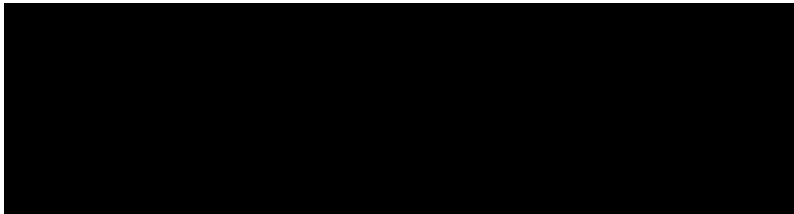
CSS in SVG

The main topic for this month was supposed to be the Selectors and CSS dialog that was added experimentally in Inkscape v1.0, and then promoted to non-experimental in v1.0.1. But in order to understand what this dialog does, it's essential to first have a decent grounding in how CSS works in a stand-alone SVG file. This month's article will put in that ground work – if you're already a CSS aficionado, then you may want to skip this one and come back next month for the details of the dialog.

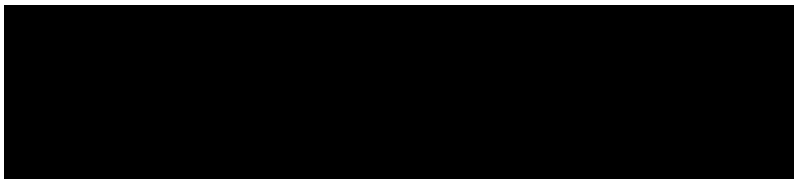
Let's begin with some history. The SVG format has always been a little confused about its identity. It was created during the great XML uprising of the late 1990s, when the World Wide Web Consortium (W3C) were pushing for a world in which XML formed a common basis for many file formats, allowing for tools and workflows that could easily combine and convert different types of data. SVG was a stand-alone vector format, not yet directly integrated into any web browsers, but the intention was clear that it should conform to, and work with, existing web standards. This left it with something of a dichotomy: on the one hand, it needed a way to directly define fonts, colors and dimensions in order to be used as a generic

vector format with no dependency on a browser engine; on the other hand, it had to work well with the growing power of CSS to define styles for those users who did want to work in a more web-focused way.

And so we have ended up with a profusion, and confusion, of ways to style SVG content. First there are the classic “presentation attributes” from the SVG format. These are attributes that can be applied directly to SVG elements in order to style them individually. For example, a red rectangle with a thick black border might be defined like this:



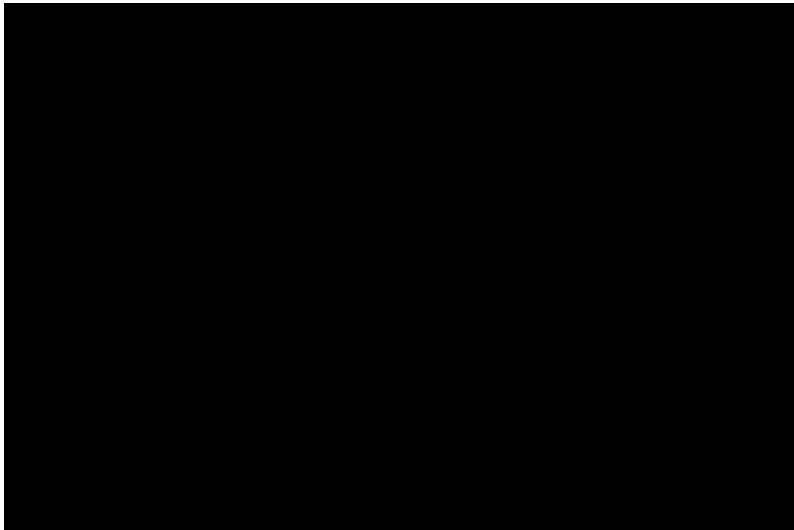
This approach requires only the consuming program to understand XML and SVG, and doesn’t impose the need for a complete CSS parser (though things like color values and most units are still taken from the CSS spec). In the early days of HTML, presentation attributes were common there, too. Veteran web developers might remember the “border”, “color” and “bgcolor” attributes, amongst others, but those capabilities were rapidly subsumed by the growing scope of CSS. In order to override CSS styles on a per-element basis, the relevant CSS rules had to be combined into a single “style” attribute. This method also works with SVG, meaning that our thick-stroked red rectangle could also be written like this:

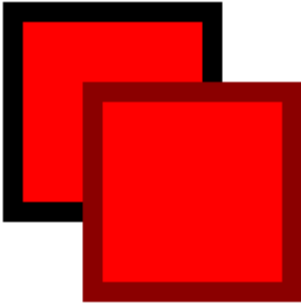


If CSS only offered a way to put all the style information into a single attribute, it wouldn’t be terribly useful. But as well as setting styles on each element individually, CSS also offers a

mechanism for applying styles across an entire document (or even across multiple documents, but that doesn't work with Inkscape). It makes it trivial to give all your rectangles the same fill color; or to divide your objects into common classes that share similar styles; or to add override rules that make, for example, the third rectangle in a group have a different stroke width to the others.

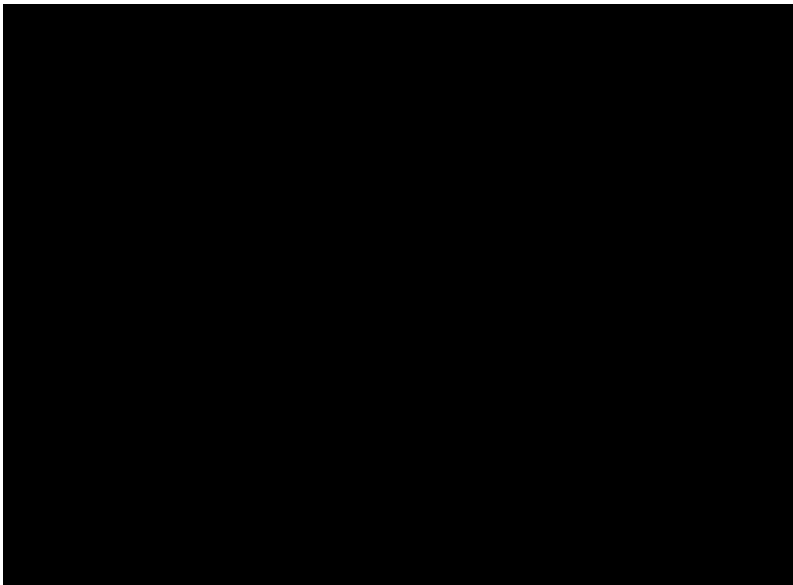
These tricks are achieved by moving the style information out of the style attributes, and into a common stylesheet in a `<style>` element. The style attribute still applies, and will override the stylesheet, as shown in this abridged example where both the `<rect>` elements share the same fill color, stroke width, and their width and height, but have a different stroke color:

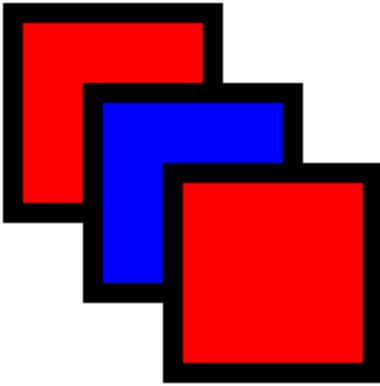
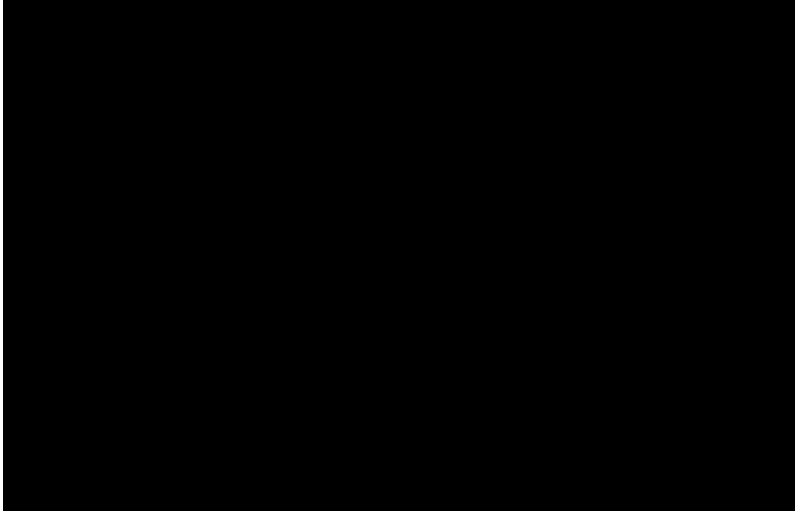




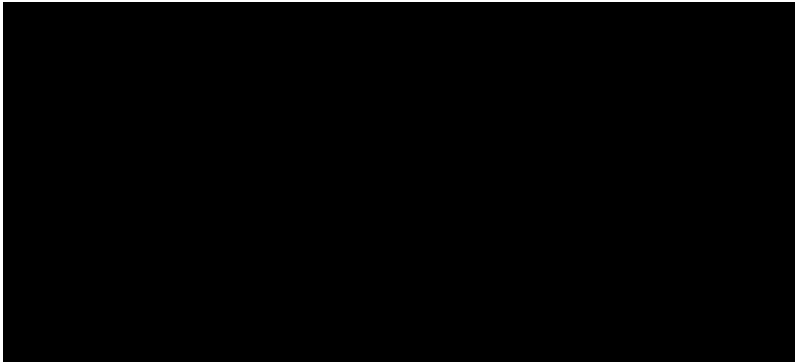
Notice that the syntax of the stylesheet is quite different to that of the SVG content. I won't go into details about how to write CSS here, but suffice to say that it's made up of multiple rules (delimited by curly braces: { and }), with each rule starting with a "selector" that determines what elements the rule will apply to. In this case, the selector is just the string "rect" which will make this rule apply to all the `<rect>` elements in the document.

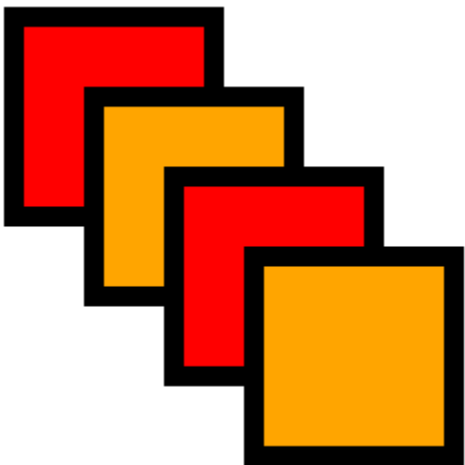
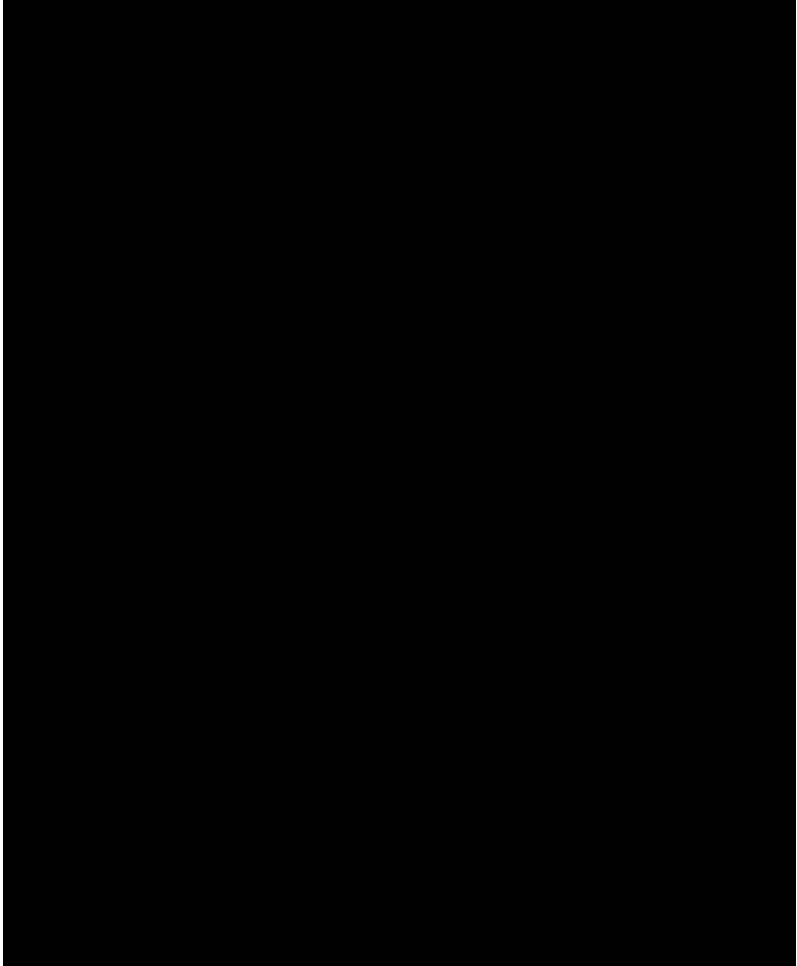
We can target a specific element by ensuring it has an "id" attribute in the SVG content (which Inkscape does by default), then using that ID, prefixed with a hash character (#), as our selector. In this next example, we have three rectangles which all share a common base style, but one of them has its fill color overridden in this way.





We can also target multiple items by giving them the same value in a “class” attribute and using it preceded by a dot (.) as the CSS selector. This example has four rectangles, split into two different classes. Note that an element can have more than one class, separated by spaces, which allows for a huge amount of flexibility in combining objects into overlapping sets.





CSS in web browsers also provides attribute selectors. These give the ability to select elements based on the presence, and optionally the value, of specific attributes on the elements. This would be particularly useful when dealing with some of Inkscape's native objects, some of which are implemented as `<path>` elements, with a custom attribute to tell Inkscape which sort of native objects they are. Similarly, groups and layers are both implemented as SVG `<g>` elements, with an Inkscape-specific attribute indicating which ones are layers, so this would offer a means to distinguish between them in CSS selectors. Unfortunately it appears that the Selectors and CSS dialog doesn't recognise the syntax for attribute selectors, so I shan't consider it further here.

These basic selectors can be combined to further refine the elements that will match. Using "rect.important", for example, would only match `<rect>` elements with a class of "important". It would not match `<rect class="warning">` or `<path class="important">`. In a similar manner, "#r1.high.important" would only match the element with an id of "r1" if it also had both the "important" and "high" classes assigned.

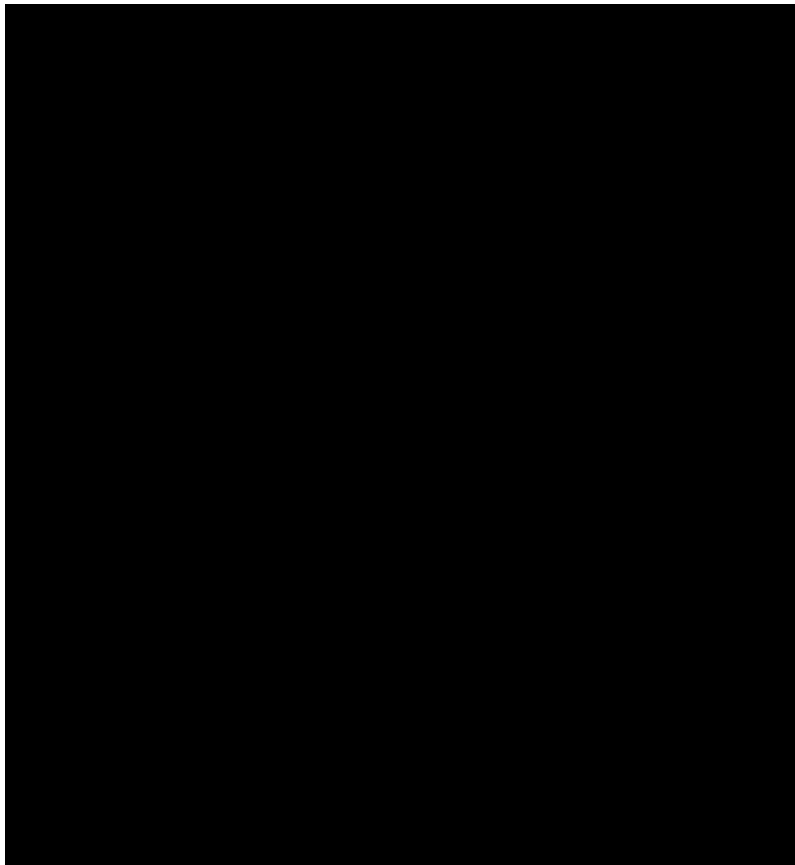
The browser provides some classes for free, in the form of "pseudo-classes" which allow you to create selectors that target things that the browser calculates at runtime. These may change dynamically, especially if your page uses JavaScript to manipulate the document. Most of them aren't applicable to the non-dynamic world of Inkscape, but some relate to the order in which elements appear in the document model, and do work in a limited manner in the Selectors and CSS dialog. For example, a selector of "rect:first-child" would select any `<rect>` element that is the first child of its parent (e.g. the first element inside a group). Inkscape doesn't quite allow this syntax, though, but there is a workaround. I'll take a deeper dive into pseudo-elements and how to work with them in Inkscape as we progress with the Selectors and CSS dialog.

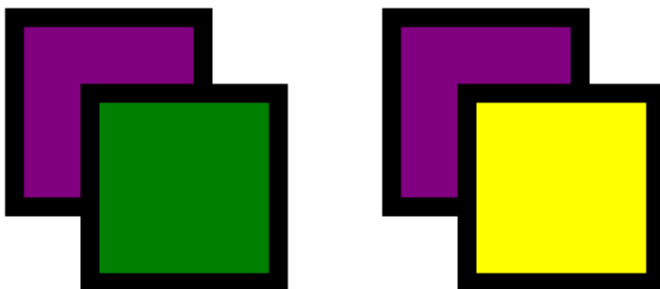
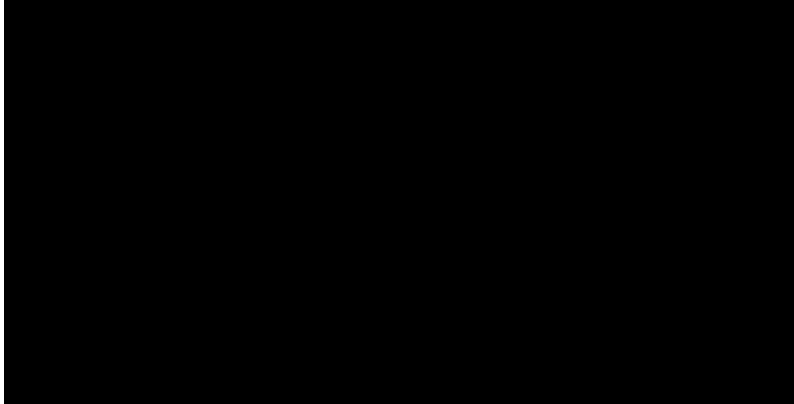
Selectors can be combined in different ways to match more elements, or to further refine the match based on the

hierarchical structure of the SVG document. “#id1, #id2, .important” would match the two elements with the specified IDs, but also any element with the “important” class. “text + path”, meanwhile, would match any <path> element that is an immediate sibling of a <text> element. That one can be useful for styling any underlines you’ve drawn with your text elements, for example.

A simple space character creates a rule that matches if the second element is a descendent (possibly even a deeply nested descendent) of the first. E.g. “g.primary rect” matches a <rect> that is somewhere inside a group with a class of “primary”. On the other hand, “g.primary > rect” would only match the <rect> if it’s an immediate child of the primary group, not if it’s nested further inside other groups.

With the information from the last few paragraphs, see if you can make sense of this example file:





There's even more to CSS than the rules I've laid out here, but these are the ones that are most useful or relevant when working with the Selectors and CSS dialog. Even so, it's a lot to take on board if you're not already familiar with CSS. Next month, it will hopefully start to make a bit more sense as we begin our look at the new dialog.

Mark uses Inkscape to create three webcomics, 'The Greys', 'Monsters, Inked' and 'Elvie', which can all be found at <http://www.peppertop.com/>

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THE DAILY WADDLE

WINDOWS FOR DUMMIES...
NOT
DUMMIES FOR WINDOWS



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Everyday Ubuntu - Retrogaming Revisited

2

Written by Richard Adams

Last month, we started installing the retro game *Forgotten Realms: Unlimited Adventures* from the SSI Gold Box series of computerized *Dungeons and Dragons* games. This month, we examine completion of the installation and how in answer the copy protection challenge while running the game. Next month, we'll take a look at downloading and setting up modules, then running the game, in order to wrap things up.

Background of the Gold Box Adventure Series

As recounted last month, SSI (Strategic Simulations Inc), under license from *Dungeons and Dragons* publisher TSR, produced a series of D&D games for DOS called the Gold Box series. They used a common game engine, and allowed you to play D&D on your computer, even with no other players around. Gold Box titles included *Pool of Radiance*, *Curse of the Azure Bonds*, *Gateway to the Savage Frontier*, and others. The final game to use the Gold Box engine was *Forgotten Realms: Unlimited Adventures*.

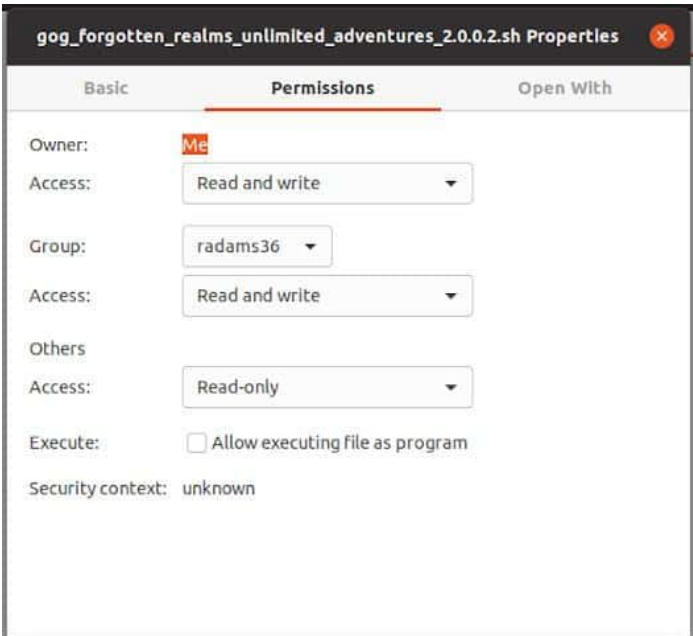
Rather than being an actual game, FRUA was a game-creation toolkit. A still active online community grew up around this, and there are hundreds of modules free to download and play for anyone who owns *Unlimited Adventures*. Most of the modules for the original paper D&D game are available, with many original adventures being available, as well.

Fortunately for us Linux users, GOG.COM has a version of FRUA remastered for Ubuntu, as part of their *Forgotten Realms Collection 2* (which includes several other Gold Box games) for

the price of \$9.99. Last month it was on sale for \$2.49, so I hope at least some of my beloved readers got a copy. It's still a great value at the current price, considering it amounts to getting hundreds, of games when you factor in how many free modules are available for download. And that's without even accounting for the other terrific Gold Box games in the package. Highly recommended.

Installing the Game: Bash Shell Scripts

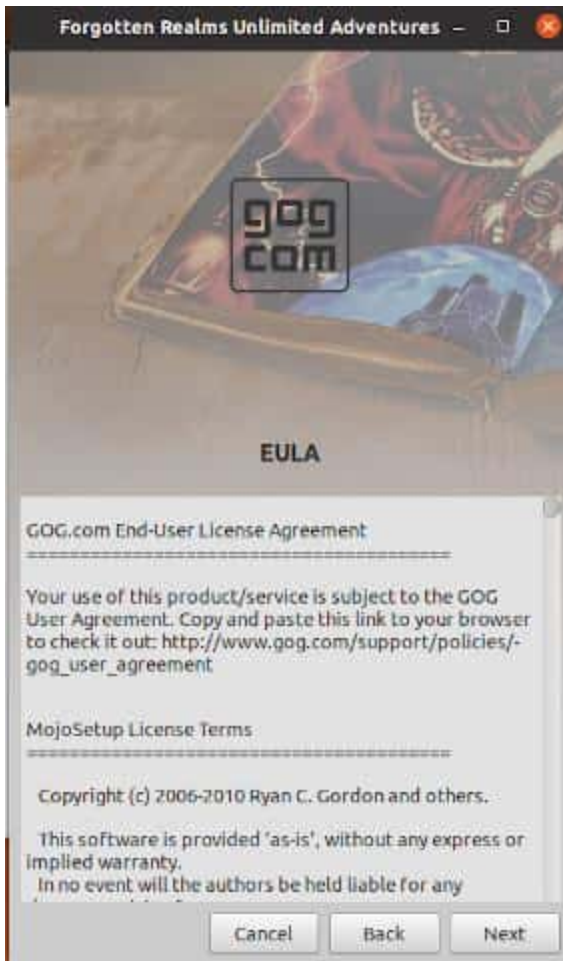
Last month, we covered how to download the Bash Shell Script for FRUA from GOG.COM, and how to change the properties of the file in File Explorer to make it an executable script:



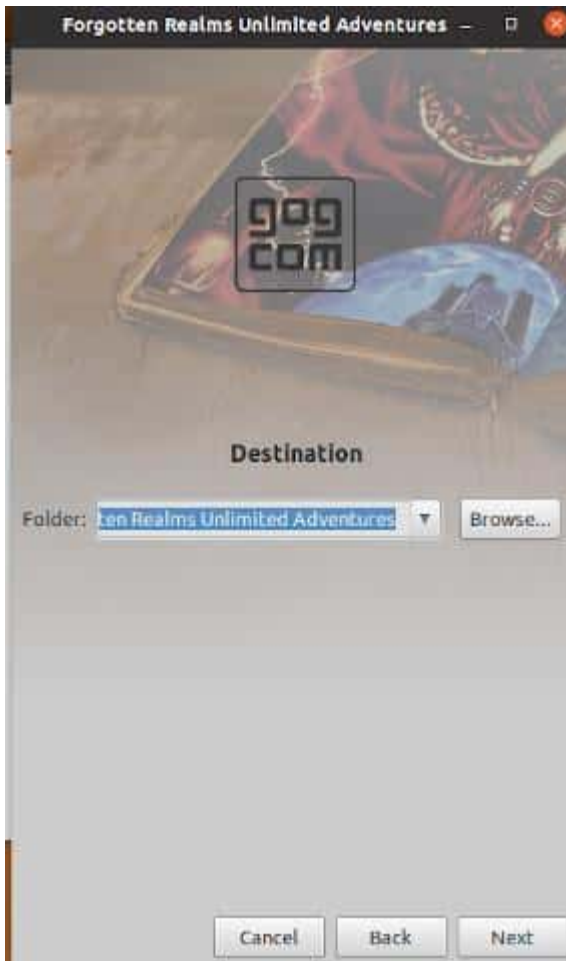
Then we double-clicked the .sh file to run the installer:



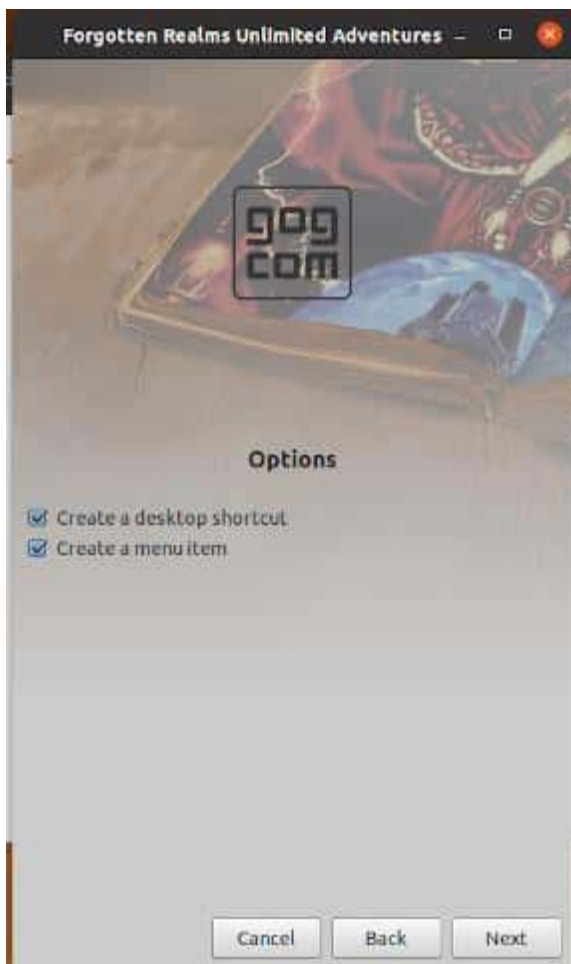
Now that the installer is running, click Next to bring up the End User License Agreement (or EULA), read through to decide if it's acceptable (it's pretty standard boilerplate), and click Next.



In the dialog box that pops up, click Yes. In the Destination box that pops up, you can browse to change location, or just accept the default. Do at least make a note of where it is, as we'll need to know later. There's probably no reason for most users to change the install location, so let's just click Next:



On the Options screen, we probably want a Desktop Shortcut, and we definitely want a Menu item. Accept the defaults again and click Next:



Now the installer script will complete the installation. Click Finish on the last screen of the installer:



There are now two desktop configuration files, the first is to launch the game, the second is to configure it:

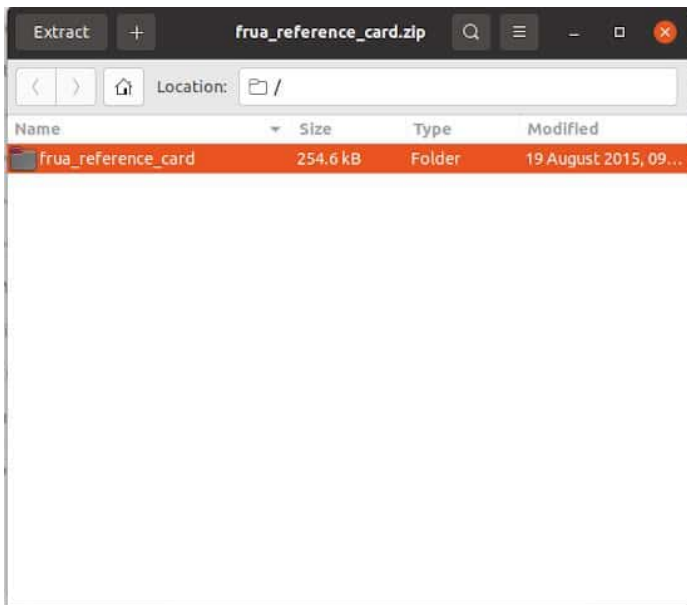


Right click the first one, select Properties, go to the Permissions tab, and select Allow Launching. This will also change the desktop icon from a generic Linux gear pictogram to the custom Forgotten Realms Unlimited Adventures icon:



Do the same for the second icon. Now we can double-click to launch FRUA. It runs, but the copy protection screen comes up and wants to know what the text is on a particular page of the printed rule book (a common type of copy protection back in

the day). We'll need to go back to the GOG.COM account page and download the Reference Card for FRUA. Find the ZIP file in File Manager, wherever you downloaded it to, and double-click:



Click the Extract button in the upper right and navigate to where you want the extracted file saved. This will give you a PDF file of the reference card. Double-click it in File Manager to read it. Repeat the process for the game manual ('Designer's Journal'), so you can access the information required by the copy protection scheme.

Unfortunately, we now have a really annoying ongoing complication. You will need to start the game (which actually runs in a DOSBox session), then get out of DOSBox's full screen mode, by using the control key combination ALT-Enter, to answer the challenge by looking up the necessary information in the PDF file. Unfortunately, the challenge will change from one game session to another, so you can't just do this once and memorize it.

Once you're out of full screen mode, open the Designer's Journal PDF file by double-clicking it in the File Explorer. Look

up the required information, then go back into the DOSBox session, on the control strip to the left side of the screen. Once you've answered the challenge, the game will proceed. You can now hit ALT-Enter again within the game to return to full-screen mode.

Sadly, this constitutes a significantly annoying pain in the posterior, I really wish GOG had removed the copy protection. It would have made a big difference. On the other hand, for a mere \$9.99, you can now run FRUA and take advantage of the hundreds of modules available for free download. That's probably worth the minor nuisance.

Next month

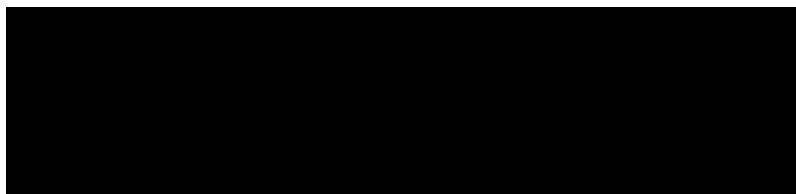
Downloading free modules for Forgotten Realms: Unlimited Adventures

Richard 'Flash' Adams lives in rural north Alabama, and has been a computer support technician, a business analyst, a software salesman, a sales analyst, a QC team lead, and is now disabled/retired. He enjoys reading, NFL football, computer and video games, cooking, and playing with Baby and Skittles, his cockatiel and dusky-headed conure. Feedback and suggestions are welcome at acer11kubuntu@gmail.com.

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Micro This, Micro That – Part 6

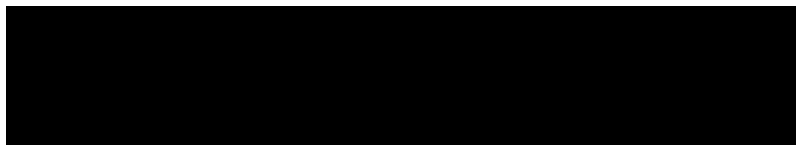
Written by Greg Walters



This month (August 2021), we'll take a look at using the SSD1302 128x64 I2C OLED Display with our Microcontrollers. For all intents and purposes, it's pretty much the same between the ESP8266, ESP32 and RPi Pico with a few exceptions. Those exceptions are where we connect the wiring for the I2C device and the way we access the I2C device. For many reasons, I selected the ESP8266 for this month's project.

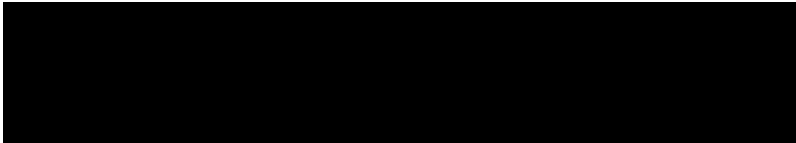
Lately, both the ESP32 and RPi Pico MicroPython firmware have started to support Software I2C which works on all output pins as opposed to the limited Hardware I2C which supports only the two I2C bus structures. The ESP8266 still uses the hardware-only I2C methodology.

To use the hardware-only option on any of the microcontrollers, you need to import the I2C and Pin classes from the machine library, then define the scl (clock) and sda (data) pins using the GPIO number. The frequency parameter is optional.



If, on the other hand, you want to use the software I2C support,

you can do it like this...



Very similar, but, of course, if you are using the software solution, you really have to be sure you define the pins. In the earlier versions of the RPi MicroPython firmware, you could simply use

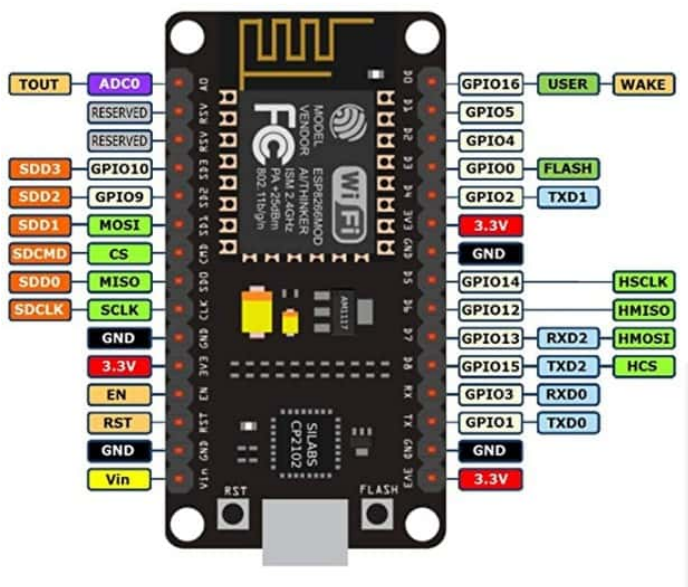


And use the defined pins for bus 0 (or 1). This, however, created a number of problems, since there were so many options for the I2C bus pins. So, to be safe and avoid confusion, always define your pins.

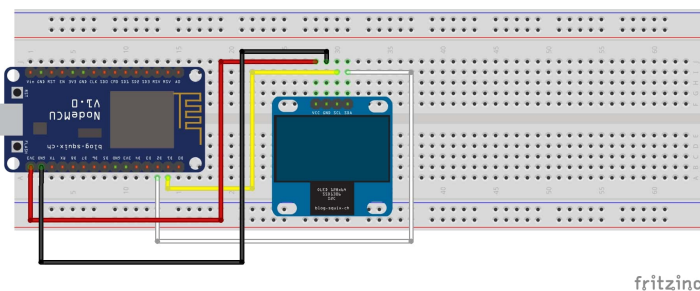
The Wiring

In this month’s project, the wiring is really simple. There’s only 4 wires. 3 volts, ground, data and clock. On my breadboard, I used the following pins.

Signal		Pin
+ 3.3 vdc		3V3
Ground		GND
SDA (Data)		D2 (GPIO 4)
SCL (Clock)		D1 (GPIO 5)



Of course, the red and black pins are Voltage and ground, the yellow is clock, and the white is data. You can use whatever color wires you wish.



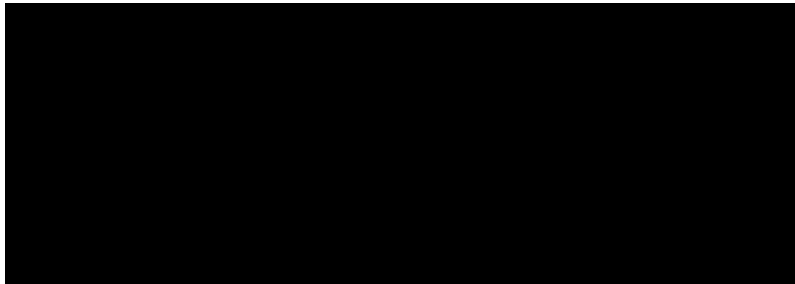
fritzing

The ESP8266 has very limited memory, so if you are using that microcontroller, you might want to back off your files and reflash with the latest and greatest firmware version from <http://micropython.org>.

Scanning the I2C Port

Once we have the wiring done and the firmware flashed, we want to make sure that everything is working correctly before

we try to do a bunch of coding. We'll use the REPL window in Thonny to do a quick scan of the I2C bus.



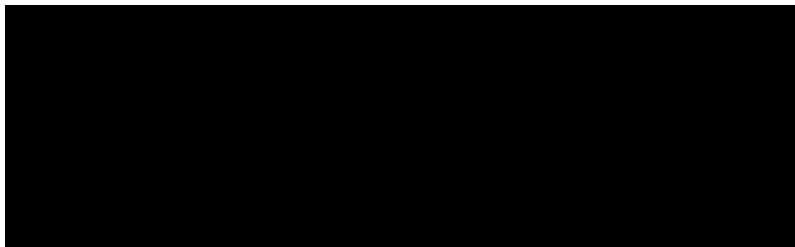
We can see that there is only one I2C device in our project and it is at address 0x3c, which is correct for our display.

Before we get into the coding of this month's project, we need to download a driver library. You can find it at <https://github.com/peterhinch/micropython-font-to-py>. This will enhance our ability to print to the display. We'll use this library in a little bit. Go ahead and download the zip and unpack it somewhere where you can get to it quickly.

The Basic Code

We will start with a simple program to talk to the display. To use the display, you'll have to get a copy of the base driver library for the ssd1306. If you are using the Raspberry Pi Pico, you can find it at <https://github.com/makerportal/rpi-pico-ssd1306>. Unzip it and copy the code onto the Pico. If you are using the ESP32, you can get the driver at <https://github.com/micropython/micropython/blob/master/drivers/display/ssd1306.py>. Again, copy that to the device. If you are using the ESP8266, the driver is already built into the latest firmware.

This test program will simply verify that we can write to the OLED and that it shows us what was sent to it.




Save the file as `displaybasic1.py` and run it. If everything is working correctly, you will see something like this.




Let's take a closer look at a couple of the lines of code. When we create the display object, we send the driver the width and height in pixels of the display and the bus that it is on. If you are using a smaller or larger display, your values will be a bit different.

The next line is the way we send the text to the display. The parameters are text string, column (x), row (y), and color. In our case, we are going to display it in only white (the 1).



Finally, to actually display the text, we use the show method.

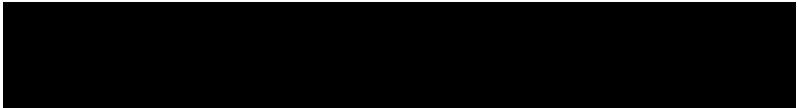


That's it. We'll look at the graphics capability and other options of the "regular" driver in a later article. If you get the expected results, then we'll look at the library we downloaded earlier.

Better Displays

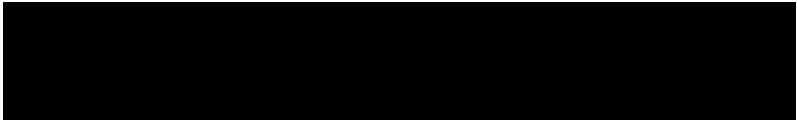
If you are one of the lucky people who have great eyesight, then you can read the display from 3 feet or more without problems. However, for an old man like me, while the display is bright, trying to read anything greater than about 16 inches away is a strain. Wouldn't it be nice to be able to use a bigger and denser font? That's what we are here to talk about. (I know, it took me 4 pages to get to the real reason we are here. Sorry about that.)

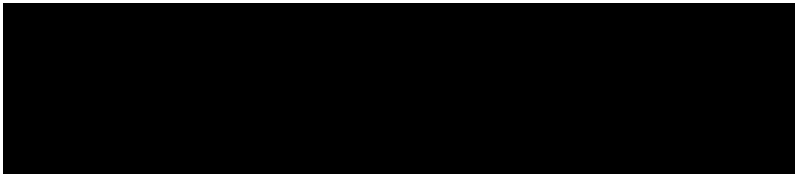
The distribution zip of micropython-font-to-py contains a really large number of files, but we need only a few for right now. In the writer folder, you'll need to copy the following files to your microcontroller.



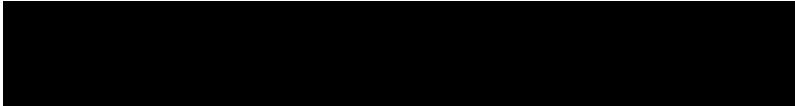
We'll be modifying the writer-demo.py file, so you can either copy that as well, or just get the code from the repository for this month. The first four files are the font files, the ssd1306_setup.py file allows you to set your I2C pin configuration, and the writer.py file is the actual driver that does all the magic. We'll start by modifying the ssd1306_setup.py file to set our configuration.

As usual, the imports come first. There is no change to these three lines:

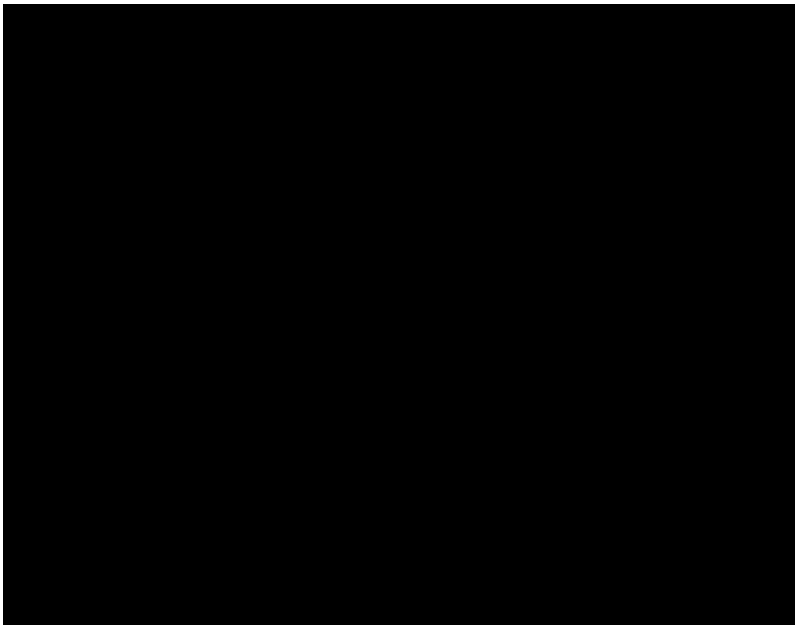


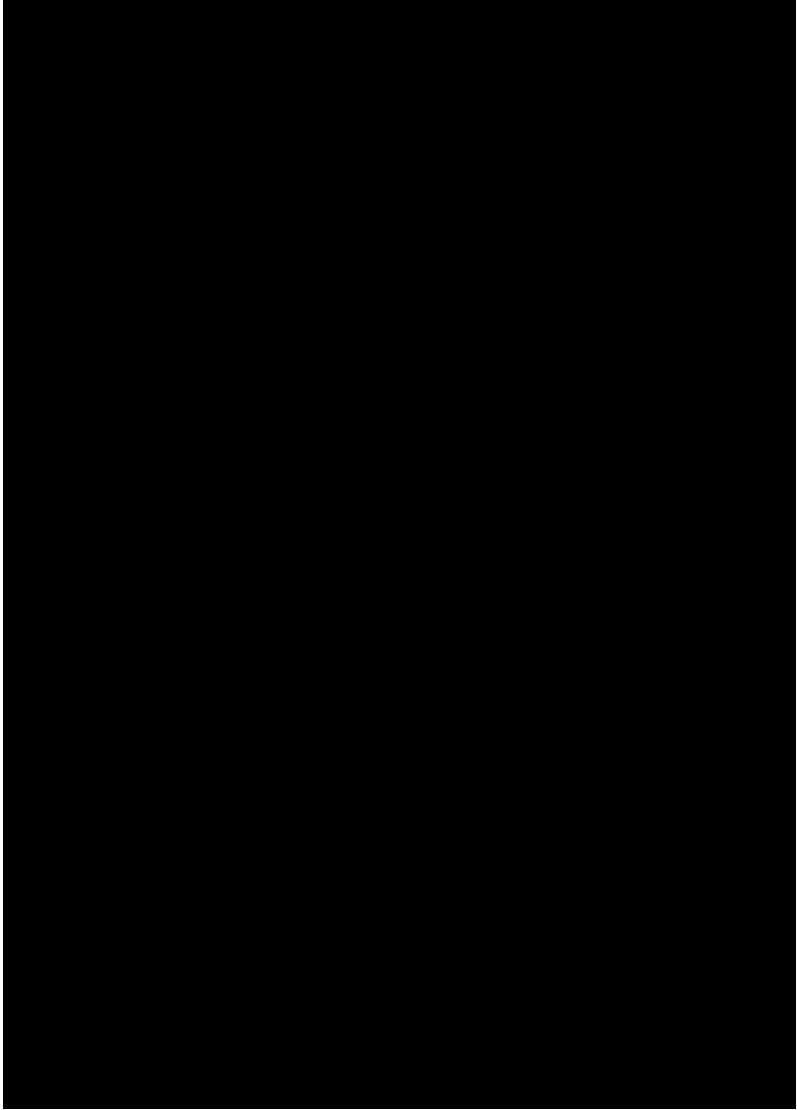


If you are using a ssd1306 that has 128x64 resolution, then you don't need to change anything here. However, if you are using a 128x32 ssd1306, change the height value to 32. I show it commented out here.




The other thing that needs to be changed is in the setup function, down near the end of the function. The first part allows you to use an SPI based display. I've just got it here for reference. Since this driver was originally written for the Pyboard, we will have to change a few things here. In order to make things easier for our three possible microcontrollers, I've commented everything out in the I2C portion of the function except the portion following the last else. Make sure that you fix the indentation so that the lower portion of the code falls under the starting if statement (if use_spi:). Once again, make sure the I2C pin numbers match your setup.

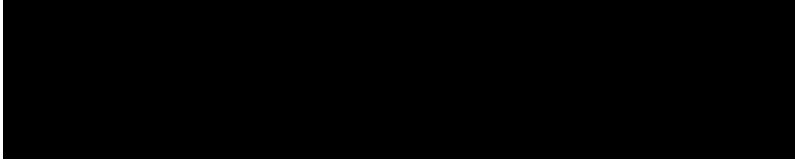




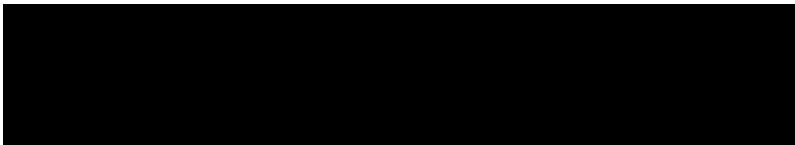
At this point, we need to edit or create the `writer_demo.py` file. I'm going to leave out most of the comments here, but they will be in the file in my distribution.

I'll show you the main parts of the demo file and then I'll explain how you can change it.

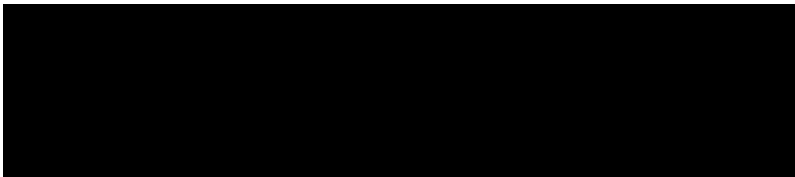




Again, we start with the support file imports. We also need to import the font file(s) that we want to include. Since I purposely chose to use the ESP8266, memory is at a premium, so I'm going to deal with only one font file at a time in this demo. For now, we'll begin with just the font10.py file. I've commented out the other two in our code (I've chosen to ignore the courier20.py font, but you can certainly include it if you wish).



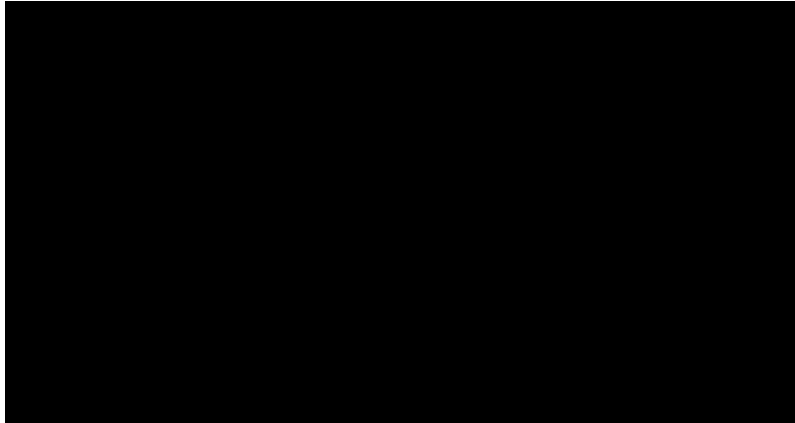
Now that the imports are done, we'll create a test function. The original author chose to make the function generic in nature, so he included the parameter `use_spi`. I chose to include this as well, and it is set to `False` by default. We call the `setup` function from the `ssd1306_setup.py` library with both parameters (`use_spi` and `soft` (software I2C)) set to `False`. It's important to remember to comment out the fonts that you won't be using and uncomment the font that you will be using.



The base (always used) code is almost done. You can always use this code in your own project.

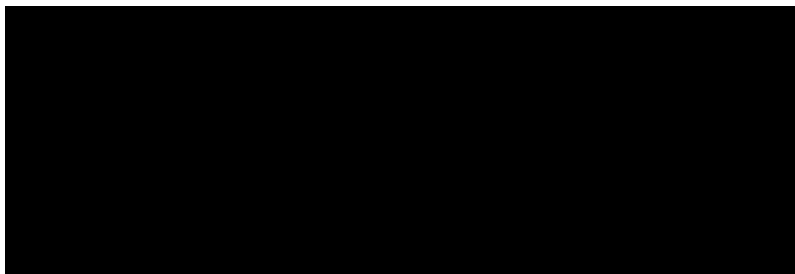
You will also want to include the next line (first line below) as well. This ensures that the display starts at row 0, column 0, at startup. The next steps are to get the current time and date (`time.localtime()`) and format it to show the date on the first line and the time on the second line. Finally, we use `ssd.show()` to actually display the information. The information that we

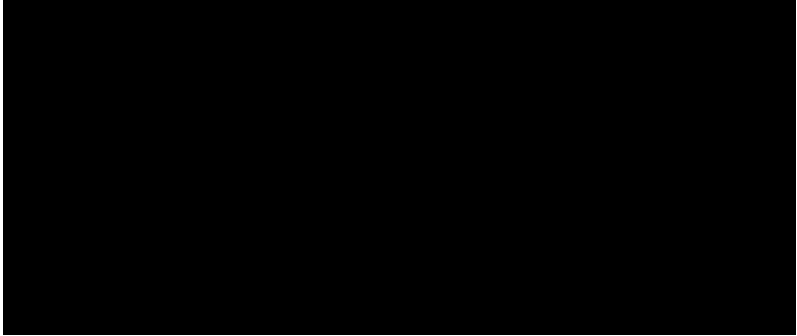
get from the localtime call is returned as (2021, 8, 4, 8, 52, 49, 2, 216). Year, Month, Day, Hour, Minute, Second, Milliseconds. Remember the data is zero based, so the date information is dt[1], dt[2], dt[0] for the crazy americans. If you live in one of the saner countries, feel free to format it as you wish!




This is where I deviate (moreso) from the demo code that the author provides. I want to show how to display the time every second and what you have to do to overwrite the previous information. I chose to do this for a period of 2 minutes. If you feel that is too long or short, go ahead and change the 120 in the for loop to a different value.

We set the text position to row 18 column 0 to overwrite the previous time display, verify that the seconds have a leading zero, send the string out, tell the driver to display the new information and then sleep for 1 second. The value of row 18 will change depending on the font you are using. I had to try various values to come up with that. I found that if you are using font6, then you should use 14, for font10 use 18, and for freesans20, 20 works well. You can tweak these values to suit your needs.





Finally, we call our test function to start the fun.



Save the file as `writer_demo2.py` (just to make sure the original one is still there), and run the program. There is a chance that, if you are using the ESP8266, then you might get a memory error when you try to run it. The author's documentation suggests that you should be able to use the file `writer_minimal.py` to replace `writer.py`. However, when I tried to use it, I got errors. So, if you are having memory issues, try to remove any unused files from your device and/or try a smaller font file.

Here is what each font looks like on my display.



Font6.py



Font10.py



[Freesans20.py](#)





And the basic driver again for comparison

You can see that either of the three generated by the Writer driver are much better at a distance than the basic driver. Even when using font6.py, the text is easy enough to read at about 2 feet and, at least for me, font10.py is the best when you consider the readability at a distance and the memory size.

As I suggested earlier, there is a lot more to both the “original” ssd1306 driver and the enhanced writer program. In addition, we used only a small part of the font-to-py repository. There is, as the name suggests, a helper program that will allow you to create your own font files (from ttf font files) that can be used in your own programs. We’ll look into all of these in later articles.

You can find all of the code and image files on my github repository at https://github.com/gregwa1953/FCM172_MicroThisMicroThat.

As always, until next time: stay safe, healthy, positive and creative! Greg

Greg Walters is a retired programmer living in Central Texas, USA. He has been a programmer since 1972 and in his spare time, he is an author, amateur photographer, luthier, fair musician and a pretty darn good cook. He still is the owner of RainyDaySolutions a consulting company and he spends most of his time writing articles for FCM and tutorials. His website is www.thedesignedgeek.xyz .

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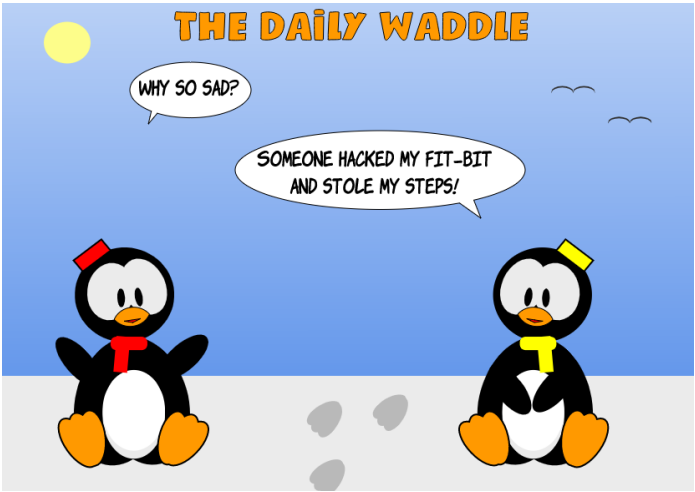
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Ubports Devices

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How To - Write For Full Circle Magazine

Written by Ronnie Tucker

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The Official Full Circle Style Guide can be read at: <http://bit.ly/fcmwriting>

Please read this document before submitting an article. Follow the guidelines and you will have a much better chance of seeing your article in Full Circle.

Writing

There is no word limit for articles, but be advised that long articles may be split across several issues. In your article, please indicate where you would like a particular image to be. Please do not use any formatting in your document.

Images

Images should be no wider than 800 pixels, in JPG format, and use low compression. When you are ready to submit your article, please email it to: articles@fullcirclemagazine.org

Non-English Writers

If your native language is not English, don't worry. Write your article, and one of the proofreaders will read it for you and correct any grammatical or spelling errors. Not only are you helping the magazine and the community, but we'll help you

with your English!

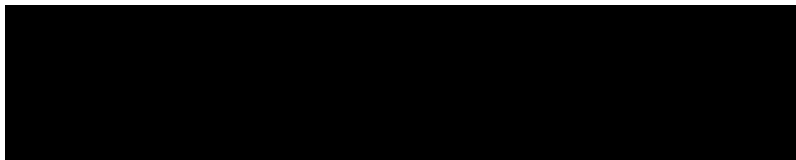
For Reviews

Games/Applications: When reviewing games/applications, please state clearly:

- *title of the game*
- *who makes the game*
- *is it free, or a paid download?*
- *where to get it from (give download/homepage URL)*
- *is it Linux native, or did you use Wine?*
- *your marks out of five*
- *a summary – with positive and negative points*

Hardware: When reviewing hardware, please state clearly:

- *make and model of the hardware*
- *what category would you put this hardware into?*
- *any glitches that you had while using the hardware?*
- *easy to get the hardware working in Linux?*
- *did you have to use Windows drivers?*
- *marks out of five*
- *a summary – with positive and negative points*



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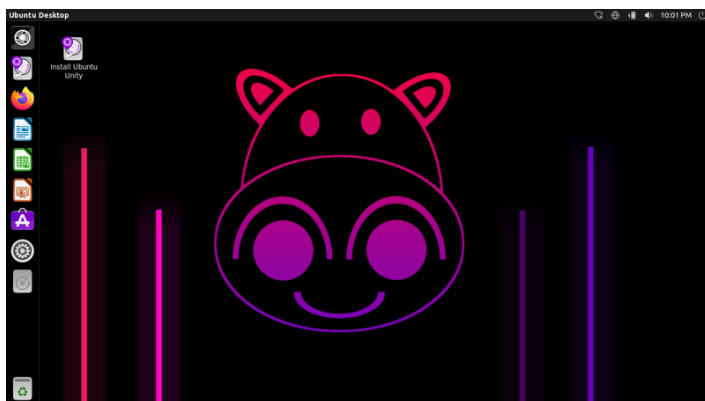
Review - Ubuntu Unity 21.04

Written by Adam Hunt

Ubuntu Unity has shown some good staying power, with Ubuntu Unity 21.04, its third release, out on 22 April, 2021. There's a good core of people working on the project, led by Indian developer, Rudra Saraswat.

This relatively new distribution is basically mainstream Ubuntu, but with the Unity 7 user interface in place of Ubuntu's modified Gnome desktop. The Linux distribution aims to continue the efficiencies and aesthetics of Unity, which was the official interface for Ubuntu from 2011 to 2017.

Ubuntu Unity 21.04 is a “standard” release, supported for nine months, until January, 2022. This is the second of three standard releases that mark the road to the next long term support release, Ubuntu Unity 22.04 LTS, expected in April 2022.



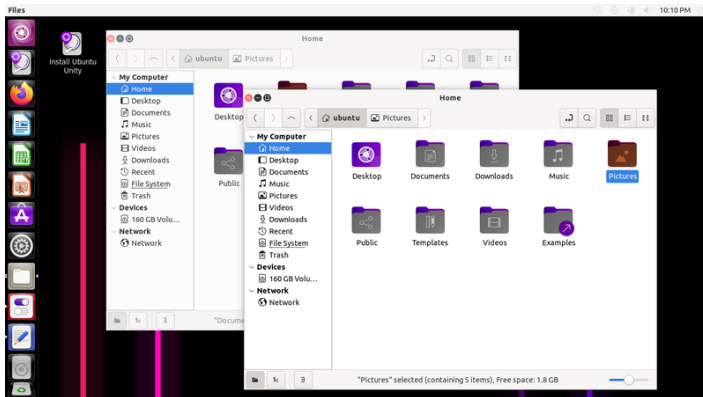
Default desktop

System Requirements

Ubuntu Unity 21.04 does not specify minimum system requirements, but it is probably reasonable to assume that it is the same as mainstream Ubuntu: a 2 GHz dual-core processor, 4 GiB of RAM, and 25 GB of hard-drive space.

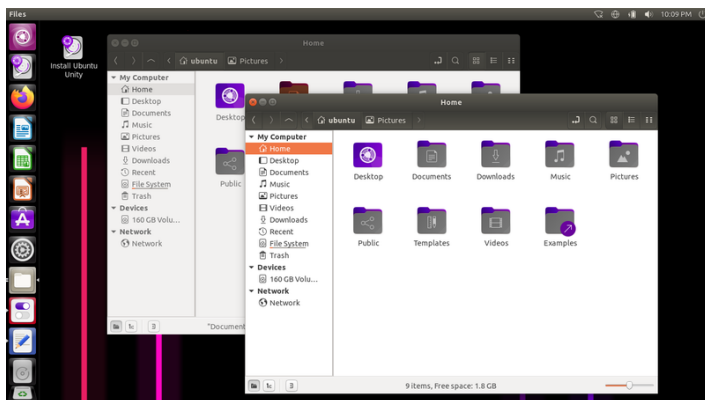
Installation

I downloaded Ubuntu Unity 21.04 from the official website via bittorrent, carried out an MD5 sum check on the file to make sure I had a good download (MD5 is the only method provided), and then used UNetbootin to write it to a USB stick for testing.



Adwaita theme

Like all the Ubuntu 21.04 family of releases, Ubuntu Unity 21.04 now runs the automatic file integrity checker silently in the background. Presumably it will let you know if you have a bad write on the USB stick!



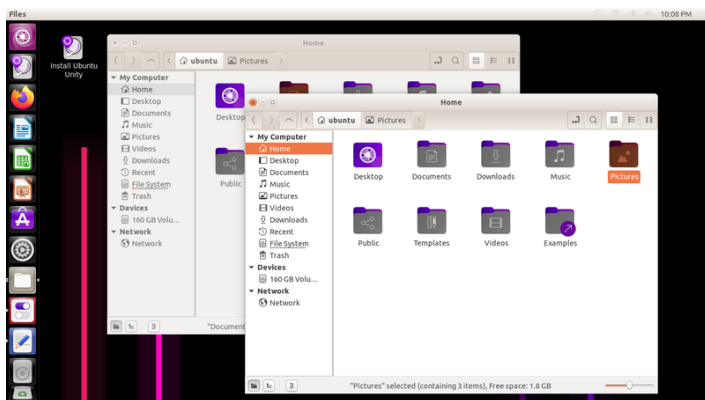
Ambience theme

New

The previous release of Ubuntu Unity, which was 20.10, had quite a number of changes made to start off the development cycle towards the next LTS release. Ubuntu Unity 21.04 has far fewer changes, perhaps indicating that the development team feels it is getting close to where they want it to be for the LTS. We will see if the next release, Ubuntu Unity 21.10, due out on 14 October 2021, introduces more changes or just some small refinements.

Ubuntu Unity 21.04 brings a new set of Unity-specific Yaru themes, including a new default window theme, Yaru-unity-dark.

Other changes include a new transparent Ubuntu Unity launcher button designed by Muqtadir, a new Plymouth boot-up screen design, and 12 new wallpapers. The wallpapers were all designed by Allan Carvalho and are specific to 21.04. Most of them are Hippo-themed to go with the release name, “Hirsute Hippo”. This wallpaper collection replaces the 54 wallpapers included in the last release, Ubuntu Unity 20.10, which I believe was an Ubuntu record. The move to 12 release-specific wallpapers is probably an admission that the previous 54 were a bit of an “overkill”.



Radiance theme

Otherwise, Ubuntu Unity 21.04 uses the Linux 5.11 kernel, with its support for some new hardware and the usual new application versions from the Ubuntu repositories.

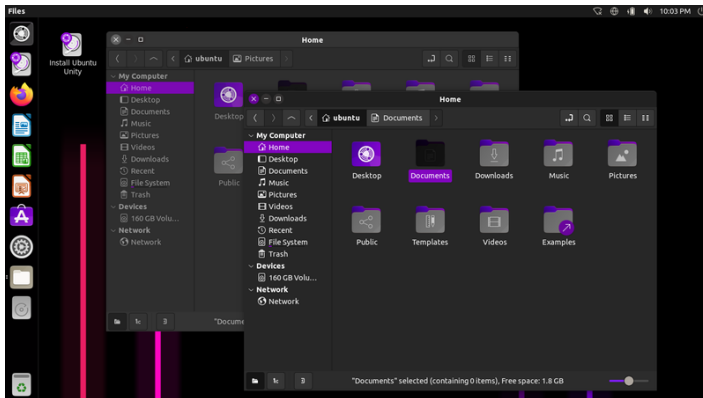
Settings

This release includes 16 themes, 31 icon sets, plus the 12 wallpapers, so, once again, there are lots of choices for user customization. It is worth noting that, to get the full range of themes and icon sets, you need to use the included Unity Tweak Tool, as the normal menu choice of settings→ appearance→ theme offers only four of the theme choices.

I have to admit that when I first booted up Ubuntu Unity 21.04, my initial reaction to the default theme and wallpaper was that it must be a parody. I know that, these days, there are lots of fans of dark themes, but the default setup seems to be making fun of that trend. You get an almost black wallpaper and, when you open up a few application windows, the Yaru-unity-dark theme renders them all-black with black buttons, black borders and black decorations. Consider that the top panel is also black and the Unity launcher shows the black wallpaper through, and you have an almost unusable desktop, but it is really, really dark! Douglas Adams might have been describing this default theme (instead of a spaceship) in the Hitchhiker's Guide to the Galaxy, when he wrote, "Now that is

really bad for the eyes. It's so black – you can hardly even make out its shape. Light just falls into it.”

The good news, of course, is that, with 16 themes and 12 wallpapers to choose from, it is easy to “lighten it up” a bit to the point where you can at least discern what you have open. Even the classic Ambiance and Radiance themes which were the Ubuntu standards for many years are available.



Yaru-unity-dark theme

Default dark-theme parody or not, Ubuntu Unity gives lots of user choices, allowing you to make it look pretty much how you want, and that is something that sets Ubuntu Unity apart from mainstream Ubuntu, which has very limited user choices in settings.

Applications

Some of the applications included with Ubuntu Unity 21.04 are:

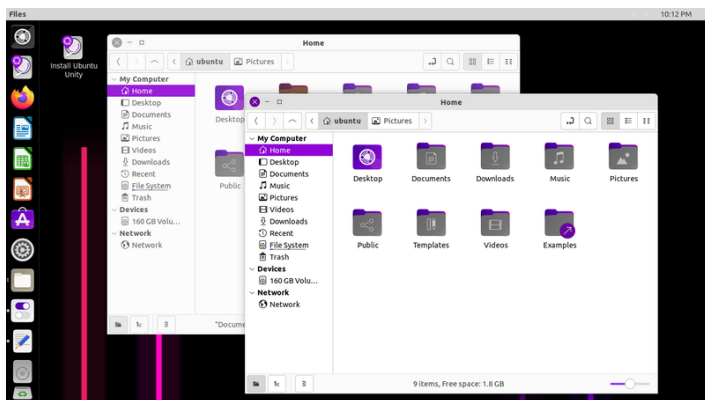
- *Archive Manager (File Roller) 3.38.1*
- *webcam application*
- *Cheese 3.38.0*
- *webcam application**
- *CompizConfig Settings Manager 0.9.14.1*
- *desktop effects***
- *CUPS 2.3.3*
- *printing system**
- *Document Viewer (Evince) 40.1*
- *PDF viewer*
- *Document Scanner (Simple Scan) 3.38.1*
- *optical scanner*

- *Firefox 87.0 web browser*
- *GDebi 0.9.5.7 .deb package installer**
- *Gnome Calendar 3.38.2 desktop calendar*
- *Gnome Disks 40.0 disk manager*
- *Gnome System Monitor 40.0 system monitor*
- *Gnome Terminal 3.38.1 terminal emulator*
- *Gparted 1.1.0 partition editor*
- *Image Viewer (Eye of Gnome) 40.0 image viewer*
- *Kupfer 320-1 application launcher*
- *LibreOffice 7.1.2 office suite*
- *Nemo 4.8.6 file manager*
- *PulseAudio 14.2 audio controller*
- *Rhythmbox 3.4.4 music player**
- *Shotwell 0.30.11 photo manager*
- *Text Editor (gedit) 3.38.1 text editor*
- *Thunderbird 78.8.1 email client*
- *Timeshift 20.11.1 system restore utility*
- *Transmission 3.00-1 bittorrent client**
- *Ubuntu Software (Gnome Software) 3.38.1 package management system*
- *Unity 7.5.0 interface**
- *Unity Tweak Tool 0.0.7 settings manager**
- *Videos (Totem) 3.38.0 movie player**

*indicates the same application version as used in Ubuntu Unity 20.10.

**Launchpad indicates the latest version available as 0.9.5.92 for Ubuntu 12.04 LTS (Precise Pangolin), so I am not certain where this version comes from.

Two applications have been removed from this release since last time, the Startup Disk Creator USB ISO writer, and the Remmina remote desktop client. Neither were mentioned in the release announcement, so it is not clear why they were dropped. In the case of the Startup Disk Creator, it probably makes sense to remove it, since it did not work for writing Ubuntu Unity to a USB stick anyway.



Yaru-unity-light theme

This release has two “software stores” installed, Ubuntu Software and Gnome Software, which is a bit odd since the former is really just a rebadging of the latter. Both of them continue to offer Snaps and .deb files, where available, giving users a choice of package types.

The default file manager is Nemo – the Nautilus (Gnome Files) fork that brings back the missing functionality that was removed from Nautilus some years ago. The only oddity is that Nemo is not on the Unity launcher by default, but it is easy to add, as the launcher is highly configurable.

As in the past, LibreOffice is supplied complete, lacking only LibreOffice Base, the database application. It is probably the least-used component of LibreOffice, but it can easily be installed from the repositories, if needed.

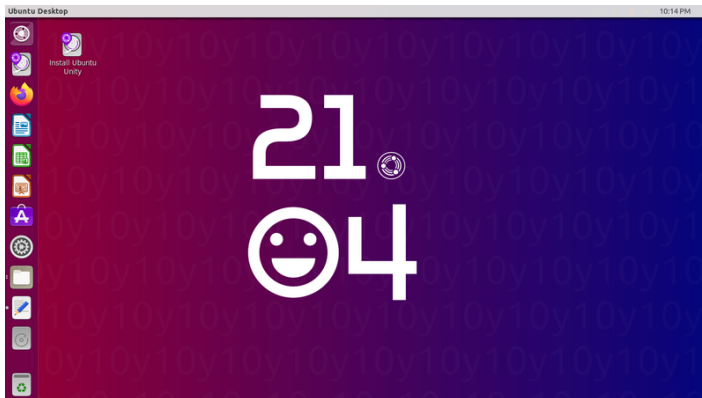
Ubuntu Unity 21.04 includes the Cheese webcam application but does not have a CD/DVD burning application, an image editor, or a video editor. These can all be installed from the repositories, if desired.

The user interface is, of course, Unity 7.5.0, which is the whole point of Ubuntu Unity! As always, it is a very efficient, keyboard-centric interface that still feels very modern and up to date. Work has started on a new release of Unity to replace Unity 7, but I personally wouldn't be in a big hurry for it, as

Unity 7 is an excellent desktop interface.

Conclusions

Ubuntu Unity 21.04 is another strong release from the development team. The focus of this development cycle has been on including more user “look and feel” choices, while providing the efficient Unity 7 interface and a good range of applications. It is a formula that seems to be working, as each release, so far, has accumulated improvements.



Alternate wallpaper

All of this bodes well for the next LTS, due out in April 2022. I have to admit, I am curious to see what the next standard release, Ubuntu Unity 21.10, will bring, as it is the last chance to refine things before the LTS comes out.

Adam Hunt started using Ubuntu in 2007 and has used Lubuntu since 2010. He lives in Ottawa, Ontario, Canada, in a house with no Windows

Letters

Compiled by Ronnie Tucker

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Q&A

Compiled by Erik The Unready

If you have a Linux question, email it to: misc@fullcirclemagazine.org, and Erik will answer them in a future issue. Please include as much information as you can about your query.

Guys, I am getting questions about Laravel and AWS and Celery (can you eat it?). Let's try to keep it Ubuntu related. I will try to help, but I am no Oracle of Delphi.

I was doing an audit at a company with four regional branches, when I realised that the way they work, they don't need Windows at all. They have a Windows server at the head office, where everyone works on shared documents. The computers are Windows pro, with everyone as their own administrator on the computers and a network login on the server. All this for:

- *a small VB program that tracks orders from one branch to another, that “has to have windows”,*
- *when it sends an email, it needs outlook(?),*
- *because it runs on terminal server, it needs office pro licenses for each user.*

So now you are paying for Windows server, terminal server licenses, office pro licenses, etc. The money they can save by switching to Ubuntu! (I mean, why do people even throw money after Microsoft?).

I mentioned this to the FD, who said, well all the laptops we buy come with Windows, so we can't change. What? He has a point – to some extent, finding Linux laptops is like looking for pennies in the street, you will find some, but it is not littered with them. I think what is needed is some open source business centre, where people like that can go look at people working on Ubuntu and Ubuntu server, doing all the daily tasks that they do on Windows at a fraction of the cost of Windows and licensing. Wouldn't that be great? I don't know about your country, but in mine they would probably put it in some city centre where the drug lords rule and nobody (business people) would go there. It's a dream, but one that needs reality, as people just don't fathom how much better open source is for the budget. (I am not taking city municipalities like you see in the news, as those are usually just a black hole for corrupt money laundering). I mean REAL conversion to open source software, and maybe donate some of the money saved to the developers. Oh what a dream.

Q My question is regarding LibreOffice on Ubuntu 20.04: This is the message at the top. 'Missing hyphenation info - Please install the hyphenation package for locale "en".' I have googled, I have duckduckgo'd to nonsense answers and it seems people just don't get it. It is a banner message. It can't be fixed by the options settings. I did a clean install of Ubuntu and LibreOffice. I didn't have this issue on Ubuntu 18.04 with LibreOffice 6. Can you solve what the whole internet can't?

A I am not sure you searched the WHOLE internet ;) Go

here: <https://extensions.libreoffice.org/en/extensions/show/english-dictionaries> download the latest one and install it.

Q Which Ubuntu flavour to install on my i3-3rd gen and 4 GB ram? (Lenovo 80L0) I know Ubuntu is the easiest and most compatible and best supported by software makers of the Linuxes, it's just a bit confusing to know which one.

A Try them all, see which one you like. I can suggest Ubuntu Budgie. Boot from a thumb drive and try out the live mode. To be honest, I think my potato laptop is your laptop's forerunner (first gen), and all the Ubuntu flavours seem to work fine on it. (Granted I have 8Gb memory.)

Q Can you help me with firefox on Ubuntu 20.04? My screen is WXGA and the bars take up too much space and the tabs are too high. I am seriously considering Chrome at the moment as I get more viewing area.

A You can start by clicking the hamburger menu -> more tools -> customize -> title bar, bottom left. Then, you need to get into the 'guts' with about:config. You can set: browser.uidensity to 1 in about:config to enable compact density.

Q So I updated from Ubuntu 18.04 to Ubuntu 20.04, but I did a fresh install. As you can see, my period on my numpad is now a comma. WTH Ubuntu, this used to be a windows problem, now it is affecting my Ubuntu. This is precisely the reason I left windows 8, I could not get this solved in a proper manner. It is a frustrating error that should not be there on a standard 101/102 keyboard. What needs to change?

A Since your file is an .odt, I am going to assume your issue is with LibreOffice. You can check this by opening your notepad application and typing the same key. So open: 'Tools' -> 'Options' -> 'Language Settings' -> 'Languages' -> 'Decimal separator key:' -> untick 'same as locale setting'. Don't worry, this

kind of thing drives me batty too, where the default is month-day-year, but literally nobody writes that way and no institution uses that format, but some idiot decided that is the default for my country.

Q Man-files make me lose all interest in Linux. It is like eating dry crackers on a hot day in the desert. Just tell me how to use unzip properly from the terminal?

A When you say “unzip” do you mean the unzip command or another form of “zipping” (compression)? See: <https://www.hostinger.com/tutorials/how-to-unzip-files-linux/> or <https://linuxize.com/post/how-to-unzip-files-in-linux/>

Q I need some help from you boffs. Whenever I press shutdown, [Ubuntu 20.04] starts shutting down and when it goes blank, the Xubuntu shutting down screen appears and seems frozen.

A Go to settings->power manager: 1. change : power button is pressed: to ask 2. the next 3 to "do nothing" 3. You can also change laptop lid to suspend.

Q I am following a tutorial to get more accustomed to Ubuntu after leaving Windows as it takes up too much memory. It says I must export the path to my bash rc file. How do I do that?

A Use the echo command: echo 'PATH="\$PATH:\$HOME/ <path to="" your="" app=""> "" > > ~/.bashrc </path>

Q My dell laptop is giving me issues, but it is out of the warranty period. So I have been cruising the forums and it seems I need to update the BIOS. From what I can see, it is 11 versions behind. However, the Dell website has only instructions for Windows .exe files? I thought they supported Ubuntu?

A You are out of luck there, you need to grab another hard drive, boot / install Windows, install BIOS update

and plug your Ubuntu drive back in. There is another way, but it requires removable media, which sometimes causes problems, such as bricked laptop.

Q After installing my VPN, I can no longer browse the internet with firefox. I can still ping an IP address like 1.1.1.1, but it won't resolve www.google.co.za. This tells me that it is some DNS issue, but I don't know how to solve it on Ubuntu.

A Left-click on your network icon -> edit connections. Then change your settings under IPv4 Settings to manual and give yourself an IP (same one you have in DHCP, but with your router or provider DNS settings.) You can also try quad 1, quad 8, or quad 9 as primary / secondary DNS.

Q If I don't want to install a flatpak of an app on my Ubuntu, how do I do it? Btw, I have 20.04 with 8GB ram and 60GB SSD Dell Laptop with model number faded to a grey black mess.

A I am going to assume you need the space with the small HDD. You can search for the app in Google with .deb file after it. You can also search for the app on Github and see if they don't have a .deb-file in their releases page. If push comes to shove, build it from source.

Q What means this? "Ign:9 <http://linux.dropbox.com/ubuntu> eoan InRelease" Duckduckgo takes me here: <https://askubuntu.com/questions/1356717/ran-sudo-apt-update-and-shows-errors> but it doesn't say what it means?

A I am going to assume you mean the ign, since the post explains everything else. It is short for ignore.

Q Be patient with me, I am slow by nature. I grabbed a .deb file off the internet and copied it to my Raspberry pi. I have a minimal install of Ubuntu on there. How do I install this file now?

A Assuming you have all the dependencies installed, it

should be as easy as: `dpkg -i <package name=""> </package>`

Q I have taken all our old DVD RW's from work and re-purposed them. First order of business was to load Ubuntu Budgie on the old work laptop. (They re-formatted Windows for us when they sold it to us, but I don't want Windows.) This is where my trouble began. My live DVD just freezes. I can't get to install Ubuntu Budgie. What could be wrong?

A Lots, actually – Have you verified the ISO image? Have you verified the written DVD? Have you verified that you have the right image – legacy or EFI? Is your BIOS set correctly? (Are those “safe boot”-type settings disabled?) I will need more info to assist you better.

Q I have installed Ubuntu alongside Windows, not IN windows, and I am mirroring all my software across. I installed Skype 2 days ago in Ubuntu, but now my Windows version won't sign in. Always “something went wrong”. What I have done is uninstall Skype on Ubuntu side, installed Skype on Windows side, tried Skype from the store, tried Skype from the Website, purge it from my system - every last file named skype - and try again all the methods. Do you think I got blocked for using Ubuntu?

A No, I think windows wants to spy on you, turn on all the spying crap on the Windows side and sign in. You can turn it off again afterwards. (I have seen this a few times before.)

Q What is the quickest way to troubleshoot an App that fails to launch on Ubuntu?

A Just run it from a terminal and peruse the output.

Q I haven't updated in a while and I tried upgrading from the command-line to get to Ubuntu 21.04, but it keeps failing? I want to get the latest everything in one go.

A You cannot skip over versions, you need to go from

one to the other in order. Won't it just be easier to install the latest LTS instead?

Q How can I fix this? dpkg: unrecoverable fatal error, aborting: unable to open directory '/var/lib/dpkg/updates/': Operation not permitted E: Sub-process /usr/bin/dpkg returned an error code (2).

A Updates? Do you have sudo? Try fsck on your disk on the next boot. (In the root “/” not “/root”: touch / forcefsck and reboot.)

Q Don't laugh, I somehow lost the menubar on my terminal in Xubuntu. How can I get it back? I can temporarily see it with F10.

A Right-click inside the window and select “show menubar”

Q I want to clear my desktop of all distractions and buttons and bars. Just one question, how would I toggle my hot corners?

A You can try: <https://9to5linux.com/just-perfection-gnome-shell-extension-now-lets-you-customize-your-gnome-40-desktop>

Q My laptop is in for repairs and I got an older Model Thinkpad X220, with a much smaller touchpad than I am used to. The sensitivity on this is not to my liking and I am not a trackpoint fan. Is there a way to play with the sensitivity settings for the pad, I can't seem to find any.

A You can try the gnome tweak tool to play with it. Have a look here: <https://itsubuntu.com/install-gnome-tweak-tool-on-ubuntu-20-04/>

Q ****p I ran out of disk space and I now can't log in. I am on POP! 20.04. My system only has a modest 120GB SSD. What can I remove?? How can I remove them?

A I would start with your own files, then move on to the /var/cache/apt/archives and delete all the .deb-

files in there. You would need to boot to a live thumb drive or DVD. Once you are back in, I suggest installing Stacer and using that to clean your temp files.

Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.

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Ubuntu Games - Don't forget me

Written by Erik

Website: <http://dontforgetme-game.com/>

Price: \$14.99 USD

Blurb: "What if our memories were at the center of a conspiracy? 'Don't Forget Me' is a narrative investigation game where you explore your clients' memories using keywords to protect their freedom. In this cyberpunk world, only you can outsmart the government's plans."

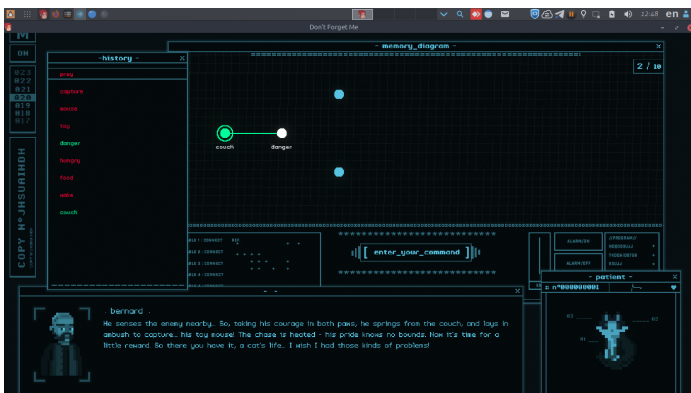
According to steam: "A jazz-punk adventure game with a twist, Don't Forget Me is a new breed of puzzle game. Dive into the memories of your patients, use your own observations to unwrap their minds and uncover a dark conspiracy set to claim dominion over humanity."

Okay, let me level with you, it's hangman pudding with another sauce. There, I said it. There is no "new breed", it's a guessing game.

I hate guessing games, especially when you have no clue what is required. This is the reason most text adventure games died a horrible death. Without a key telling you "dig" is a valid word, you could not have guessed it, as you just tried "run" and got 'invalid command'. You know North is valid, but is North East? Aaaaand this is the crux of Don't Forget Me. The tutorial has you connecting the dots in a cat's memory. You are to look for its toy mouse. Yet mouse, toy, play, ambush, hunt, are all invalid, but 'danger' is OK? This was the problem with some point-and-click adventure games, and why they went out of favour; the puzzles were stupid. Scream until you are hoarse. Now get on said horse and gallop into the sunset... What?... But I am getting ahead of myself.



The game is a pixel-based adventure game, trying to cash in on the Cyberpunk theme that is all the rage at the moment. There are no cut scenes, the start of the game sort of tells the story as you go along. Falling into the house with the door, so-to-speak. The story makes no sense either. The NPC “copyist” can read your memories and copy them, but once copied, no-one can read them... What? Yes, it is likened to Cryogenics. One day someone will be able to revive you. Here, one day, someone will be able to read the copies that he makes. So if they can’t be verified, who knows if it is not just complete rubbish? Oh, and I forgot to tell you.... It is supposedly illegal, yup, for something that cannot be verified and people want copies that nobody can read. Snake oil salesman much?



Now the part where you guess words... Like hangman where you guess letters to progress, here you progress to the next

node when you do. I don't know if you can fail here, but I got super bored and gave up. Don't disrespect your gamer's time. People don't feel cheated when something is difficult, if it still makes sense and respects their efforts.

The OST that shipped with the game is a very jazzy, swingy, experimental type that brings up images of seedy, smoke-filled rooms in the back alleys of Paris. Though the tracks are not bad, they just do not fit the game. There is one track called "neutral synth" that is just one long "aaaaaah" at different pitches, at different times in the "tune". Depending on your taste in music, your mileage may vary. The SFX gets nasty really quickly when you have that Nintendo buzz, buzzing as words are printed onscreen while you are trying to read. Most people read with an internal monologue, so the "brrrr" can be really annoying. Luckily there is none of that in the "guess the word to connect the dots" screen.

Speaking of this part, sometimes you can type in the word after the next one and you will be connected straight to it, and sometimes not. I will be darned if I know why I can't go from "danger" to "heat", but in the very next part I can go from "heat" to "sink", skipping the words in-between. Thereafter there are no branches, you need to get "noise" and "vacuum" or be stuck in word-guessing hell forever. This does not even get you to your goal, but reminds the NPC that he has a broken vacuum and you need to type "exit". What a way to alienate your players. Then the cat is gone, so whose memory did you just access? (Spoiler, the NPC tells you he didn't make a copy of the cat's memory.) Continuity just feels broken, and if you want me to suspend my beliefs and just go with it, you better make it interesting.

I know there are other parts in the game, but 45 minutes into the game and you are still in the same room, doing more of the same. At this point, I really could not be bothered any more. I was promised a thriller – with my memories at the centre of a conspiracy! Bring on Total Recall! Bring on Arnie! Bring on 'we can remember it for you', wholesale! Meh, this lot cannot even remember breakfast at inflated prices. I want to feel like

Douglas Quad, not granny Alzheimers! This is where I leave you dear reader, you can make your own mind up, but there are other things that are more fun, like picking navel lint.

If you are a fan of bad text-based adventures, hangman, and a lot of reading with a buzzing sound, you will be in for a treat; otherwise I would advise you to move along to greener pastures.

Erik has been in IT for 30+ years. He has seen technology come and go. From repairing washing machine sized hard drives with multimeters and oscilloscopes, laying cable, to scaling 3G towers, he's done it.

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The current site was created thanks to **Lucas Westermann** (Mr. Command & Conquer) who took on the task of completely rebuilding the site, and scripts, from scratch, in his own time. The Patreon page is to help pay the domain and hosting fees. The yearly target was quickly reached thanks to those listed on this page. The money also helps with the new mailing list that I set up.

Several people have asked for a PayPal (single donation) option, so I 've added a button to the right side of the website.

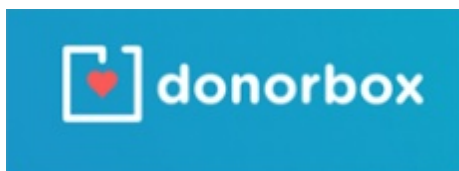
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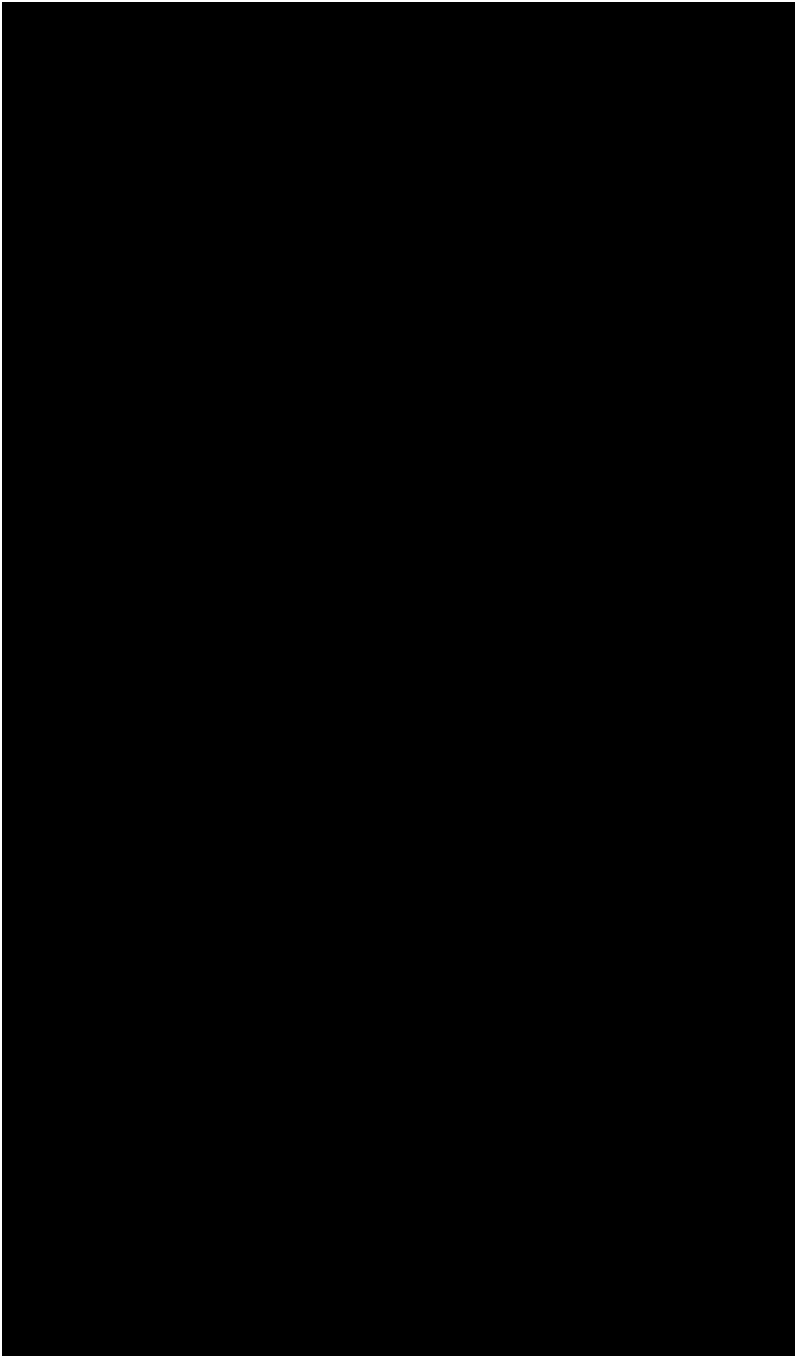


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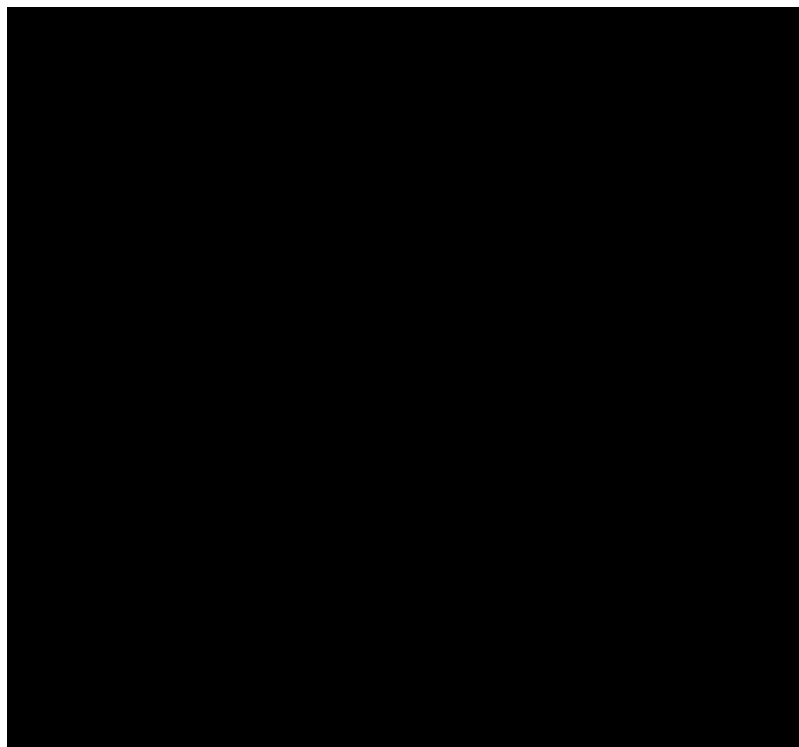
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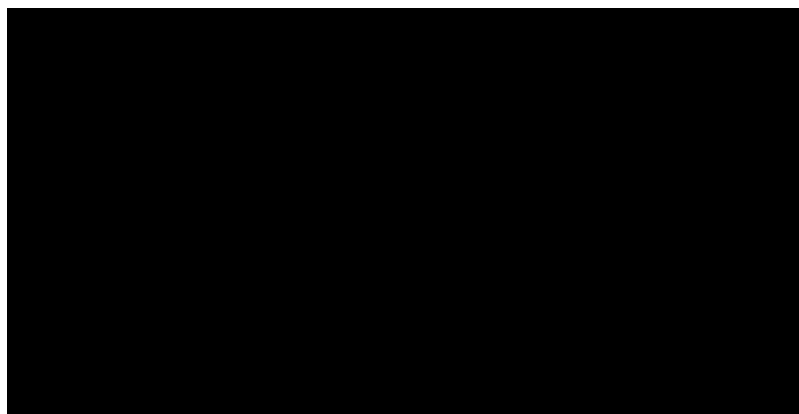


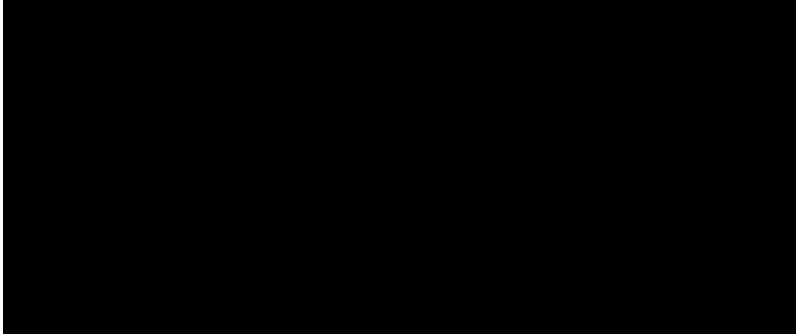
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